PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY,

HELD AT PHILADELPHIA,

FOR

PROMOTING USEFUL KNOWLEDGE.

VOL. IV.

JUNE, 1843, TO DECEMBER, 1847.

PHILADELPHIA:
1847.

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American Philosophical Society
KRAUS REPRINT CORPORATION
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NOTICE.

Devises and Legacies to the Society should be made in its corporate title—"The American Philosophical Society, held at Philadelphia, for Promoting Useful Knowledge."

Donations intended for the Society, should be addressed to "The American Philosophical Society; care of the Librarian, Philadelphia." If left with any of the following named persons, who have kindly offered their services on behalf of the Society, they will be promptly forwarded:

London. William Vaughan, Esq., Fenchurch Street.

Paris. Hector Bossange, Esq., Bookseller, Quai Voltaire.

Hamburg. John Cuthbert, Esq., Consul of the United States.

Leghorn. John B. Sartori, Esq., Merchant.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JUNE TO DEC. 1843. No. 28.

Stated Meeting, June 16.

Present, twenty-nine members.

Dr. CHAPMAN, Vice-President, in the Chair.

Letters were received:—

From the Secretary of the Zoological Society of London, dated 4th Oct. 1842, acknowledging the receipt of the Proceedings of this Society:—

From B. Silliman, Jr. Esq., dated New Haven, 5th June, 1843; Robert Gilmor, Esq., dated Baltimore, 20th April, 1843; Rev. Alonzo Potter, dated Union College, 5th June, 1843; and J. H. Alexander, Esq., dated Baltimore, 12th June, 1843, in reference to the centennial celebration; and John W. Gibbs, Esq., dated Philadelphia, 26th May, 1843, presenting a fac simile of certain writings of Franklin.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Royal Society of London. No. 56. Dec. 8, 1842, to March 23, 1843. 8vo.—*From the Society.*

The Transactions of the Royal Irish Academy. Vol. XIX. Part II. Dublin, 1843. 4to.—*From the Academy.*

Journal de Pharmacie et de Chimie. 8vo. Troisième Série. Tome 2. Nov. Dec. 1842. Tome 3. Jan. Fev. 1843.—*From the Society.*

Statistics of the United States of America, as collected and returned by the Marshals of the several Judicial Districts under the 13th

Section of the Act for taking the Sixth Census, June 1, 1840. Folio.—*From the Department of State.*

Sixth Census, or Enumeration of the Inhabitants of the United States, as corrected at the Department of State, in 1840. Washington, 1841. Folio.—*From the same.*

Compendium of the Enumeration of the Inhabitants, and Statistics of the United States, as obtained at the Department of State, from the Returns of the Sixth Census, by Counties and principal Towns, exhibiting the Population, Wealth, and Resources of the Country. Prepared at the Department of State. Washington, 1841. Folio.—*From the same.*

A Census of Pensioners for Revolutionary or Military Services; with their Names, Ages, and Places of Residence, as returned by the Marshals of the several Judicial Districts, under the Act for taking the Sixth Census. Washington, 1841. 4to.—*From the same.*

Journal of the Franklin Institute. Vol. V. Nos. 5 and 6, for May and June, 1843. 8vo.—*From Dr. R. M. Patterson.*

The Twenty-seventh Report of the Directors of the American Asylum at Hartford, for the Education and Instruction of the Deaf and Dumb. Hartford, Conn., 1843. 8vo.—*From the Directors.*

The Medical News and Library. Vol. I. No. 6. June, 1843. 8vo.—*From Lea & Blanchard.*

On the Theory and Construction of a Seismometer, or Instrument for Measuring Earthquake Shocks and other Concussions. By James D. Forbes, F.R.S. From the Transactions of the Royal Society of Edinburg. Vol. XV. Part 1. 4to.—*From the Author.*

On the Ganglia and other Nervous Structures of the Uterus. By Robert Lee, M.D. F.R.S. London, 1842. 4to.—*From the Author.*

Guano: its Analysis and Effects; illustrated by the latest Experiments. London, 1843. 8vo. Pamphlet.—*Donor unknown.*

Imanuelis Swedenborgii Sacræ Regiæ Majestatis Regnique Sueciæ Collegii Metallici Assessoris Regnum Subterraneum sive Minerale de Cupro et Orichalco, &c. &c. Cum Figuris Æneis. Dresdæ et Lipsiæ, 1734. Folio.—*From Wm. Chauvenet, Esq.*

Letters from a Father to his Sons in College. By Samuel Miller, D.D. Philadelphia, 1841. 12mo.—*From the Author.*

Discourse delivered in the Chapel of Nassau Hall, before the Literary and Philosophical Society of New Jersey, at its First Annual

Meeting, Sept. 27, 1825. By Samuel Miller, D.D. 8vo.—*From the same.*

A Discourse on the Early Constitutional History of Connecticut, delivered before the Connecticut Historical Society, May 17, 1843. By Leonard Bacon. 8vo.—*From Phil. Ripley, Esq.* Also a copy from the Author.

Army and Navy Chronicle. Vol. I. No. 20. Washington, May 25, 1843. Containing the List of the Officers and Members of the National Institute of Washington.—*From the Hon. J. C. Spencer.*

Fac Simile of a Letter from Benjamin Franklin, to Cadwallader Colden, dated New York, April 5, 1744; giving an Account of the First Organization of the American Philosophical Society.—*From John W. Gibbs.*

Map of Washington Square, Philadelphia: containing the Botanical Names of the Trees, Latin and English.—*From Thomas Sinclair.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Prof. Schumacher, Editor. Nos. 474, 475, 476. Altona, April, 1843. 4to.

FOR THE CABINET.

Ancient Indian Relic, found in East Tennessee, of the use of which the Cherokees of the present day have no tradition.—*From John C. Trautwine, Esq.*

Ancient Indian Pipe, dug up near the river Hewasnee, in Polk County, Tennessee.—*From the same.*

Mr. Ord announced the decease of Noah Webster, LL.D., a member of the Society, who died May 28, 1843, aged 85.

Mr. Kane, on behalf of the President, announced the decease of Eugene A. Vail, a member of the Society, at Paris, in the winter of 1842–43.

Dr. Hare mentioned, that he is engaged in perfecting an apparatus for the analysis of those organic bodies, which contain carbon, oxygen, and hydrogen, in such proportions that they may be considered as hydrates of carbon.

In accordance with the recommendation of the Committee on Mr. Parker's claim, the Treasurer was authorized to de-

liver possession of the Museum property to his representative, and to transfer the policy of insurance thereon to the Museum Company.

The Committee of Arrangements for the Celebration of the Hundredth Anniversary reported their proceedings in full: (*See the Appendix to Proceedings No.* 27,) and the resolutions presented by them were unanimously adopted.

So much of the resolution submitted by Professor Henry at the Anniversary Meeting as relates to the celebration of future anniversaries, was referred to a Committee, consisting of Prof. Henry and the four Secretaries of the Society.

The remainder of Prof. Henry's resolution was referred to a Committee, consisting of Dr. Ludlow, Prof. Rogers, Prof. Bache, Prof. Henry, and Mr. G. W. Smith.

Stated Meeting, July 21.

Present, twenty-three members.

Mr. Du Ponceau, President, in the Chair.

Letters were received:—

From Baron Ladoucette, dated Paris, Feb. 26, 1843, (being a duplicate,) making acknowledgments upon his election to membership:—

From the Secretary of the Royal Academy of Sciences, dated Paris, April 17, 1843;—the Professors of the Museum of Natural History, dated Paris, May 10, 1843;—the Secretary of the Literary and Historical Society of Quebec, dated May 17, 1843;—the Corresponding Secretary of the Academy of Natural Sciences of Philadelphia, dated July 4, 1843,—severally acknowledging the receipt of donations from this Society:—

And from the President and the Rev. Dr. Ludlow, acceding to the wishes expressed by the Society at its last meeting.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, ou Figures et Descriptions de Plantes Belgiques. Par Jan Kops et J. E. Vander Trappen. Livraison, No. 128. 4to. *From His Majesty the King of the Netherlands.*

The African Repository and Colonial Journal. June, 1843. 8vo.—*From the American Colonization Society.*

The American Journal of Science and Arts. Vol. XLV. No. 1. For April, May and June, 1843. 8vo.—*From the Editors.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Tiende Deel, 1e stuk. Leiden, 1843. 8vo.—*From J. Van der Hoeven, and W. H. de Vriesse.*

Journal of the Franklin Institute. Third Series. Vol. VI. July, 1843. No. 1. 8vo.—*From Dr. R. M. Patterson.*

The American Journal of the Medical Sciences. No. XI. New Series. July, 1843. 8vo.—*From Dr. Hays.*

Minutes of the General Assembly of the Presbyterian Church in the United States of America, A. D. 1843. Philadelphia, 1843. 8vo.—*From John K. Kane, Esq.*

Mittlere Oerter von 12,000 Fix Sternen, für den Anfang von 1836, abgeleitet aus den Beobachtungen auf der Hamburger Sternwarte von Carl Rümker. Hamburg, 1843. 4to.—*From the Author.*

A Complete Treatise on Field Fortification, with the General Outlines of the Principles regulating the Arrangement, the Attack, and the Defence of Permanent Works. By D. H. Mahon. New York, 1836. 18mo.—*From the Author.*

A Letter to a Philosopher, in reply to some recent attempts to vindicate Berkeley's Theory of Vision; and in further Elucidation of its Unsoundness. By the Author of "A Review of Berkeley's Theory," &c. Samuel Bailey. 8vo.—*From Henry C. Carey, Esq.*

Physiology Vindicated, in a Critique on Liebig's Animal Chemistry. By Charles Caldwell, M.D. Jeffersonville, Ia., 1843. 8vo.—*From the Author.*

Annual Report of the Interments in the City and County of New York, for the Year 1842; with Remarks thereon, and a Brief View of the Sanitary Condition of the City. By John H. Griscom, M.D., City Inspector. 8vo.—*From the Author.*

Robert et Léontine, ou La Moselle au XVIe Siècle, orné du Siége de la Ville de Metz et de trois airs notés; par J. C. F. Ladoucette. Seconde Édition. Paris, 1843. 8vo.—*From the Author.*

L'Art de Vérifier les Dates, depuis l'Année 1770 jusque nos jours. 3e Partie. Tome XVII. Publié par M. le Marquis de Fortet. Paris, 1842. 8vo.—*From D. B. Warden, Esq.*

An Address delivered at Laurel Hill Cemetery, on the Completion of

a Monument erected to the Memory of Thomas Godfrey, June 1, 1843. By G. Emerson, M.D. 8vo.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Troisième Série. Tome VII. Janvier, Février, Mars et Avril, 1843. 8vo.

Mr. Kane announced the decease of the Hon. Hugh S. Legaré, a member of the Society, who died at Boston in the month of June last.

Two communications were presented from Professor Rümker, of Hamburg, containing some occultations of fixed stars lately observed by himself and his assistant, and all the observations which he has hitherto made on the "comet, lately discovered by M. Mauvois at Paris."

The following gentlemen were elected members of the Society:—

William H. Dillingham, of Philadelphia.

Count Cancrine, of St. Petersburg, Russia.

M. Stanislas Julien, of Paris.

John Downes, of Philadelphia.

Stated Meeting, August 18.

Present, nineteen members.

Mr. Du Ponceau, President, in the Chair.

Letters were received:—

From Ambrose Baber, Esq., of the U. S. Legation at Turin, dated 5th June, 1843, transmitting certain donations to the Society:—and

From Mr. Orazio de Attellis de Santangelo, dated 24th July, 1843, transmitting a donation from Don Paolo Anania de Luca, of Naples.

The following donations were announced:—

FOR THE LIBRARY.

Memoirs of the Royal Astronomical Society of London. Vol. XII., XIII., XIV. London, 1842-43. 4to.—*From the Society.*

Proceedings of the Royal Astronomical Society. Vol. V. Nos. 30, 31. April, May, 1843. 8vo.—*From the same.*

Journal of the Royal Geographical Society of London. Vol. XII. Part II. 1842. 8vo.—*From the Society.*

Astronomical Observations made at the Radcliffe Observatory, Oxford, in the Year 1840. By Manuel J. Johnson, M.A., Radcliffe Observer. Vol. I. Published by Order of the Radcliffe Trustees. Oxford, 1842. 8vo.—*From the Radcliffe Trustees.*

A Discourse on the Qualifications and Duties of an Historian. Delivered before the Georgia Historical Society, 13th Feb. 1843. By the Hon. Mitchell King. Savannah, 1843. 8vo.—*From the Georgia Historical Society.*

The African Repository and Colonial Journal. Vol. XIX. Nos. 7 and 8. July, August, 1843. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute. Vol. VI. August, 1843. No. 2.—*From Dr. R. M. Patterson.*

Experimental Researches on Electricity. 18th Series. By Michael Faraday, Esq. From the Philosophical Transactions, Part 1, for 1843. 4to.—*From the Author.*

The British Almanac of the Society for the Diffusion of Useful Knowledge, for the Year 1840. 12mo.—*From Petty Vaughan, Esq.*

The Medical News and Library. Vol. I. August, 1843. No. 8. 8vo.—*From Lea & Blanchard.*

An Attempt to Develop the Law of Storms by means of Facts, arranged according to Place and Time; and hence to point out a Cause for the Variable Winds, with the view to practical use in Navigation. Second Edition, with Additions. By Lieut.-Col. W. Reid, C.B., F.R.S. London, 1841. 8vo.—*From the Author.*

Esame e Proposta di ciò che Manca per la Compilazione di un Trattato di Acustica Compiutô ed applicabile alle arté di Paolo Anania de Luca. Napoli, 1841. 8vo.—*From the Author.*

Storia della Filosofia per Lorenzo Martini. Serie III. 2 Vols. 8vo. Milan, 1842.—*From the Author.*

Vita Francisci Canaverii. Auctore Laurentio Martinio. Editio altera. Augustæ Taurinorum, 1843. 8vo.—*From the same.*

Catalogue of Ancient and Modern Books in the Various Departments of Science and Belles-Lettres. Library of the late Isaac R. Jackson. Philadelphia, 1843. 8vo.—*From Sears C. Walker, Esq.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 477, 478, 479. May, 1843. Nos. 480, 481. July, 1843. 4to.

Dr. Patterson announced the decease of Robert Adrain, LL.D., a member of the Society, who died at New Brunswick, N. J., on the 10th instant, aged 68: and thereupon Dr. Patterson was appointed to prepare a notice of the life and scientific labours of the deceased.

Mr. Lea read a continuation of his paper "On New Fresh Water Shells," which includes descriptions of twelve new species of Unio, most of them from Florida, to which he has given the names, U. Buckleyi, U. Buddianus, U. Minor, U. amygdalum, U. occultus, U. Monroensis, U. aheneus, U. fuscatus, U. trosculus, U. superbus, U. aratus, U. neglectus.

The communication of Mr. Lea was referred to a Committee, consisting of Mr. T. R. Peale, Dr. Hays, and Mr. Ord, and permission was given him to publish an abstract of it in anticipation of the Transactions.

Mr. Lea, from the Publication Committee, announced the completion of the 8th Vol., N. S., of the Transactions, and made a special report. From this it appeared, that the number of subscribers at this time is 113; that 77 copies are distributed by donation and in exchanges, and that 9 copies of the volume have been sold; making an aggregate number of 199. The report announced that Vol. 9 is now in the press, and that the available funds of the Committee amount to $957, of which, however, a part remains uncollected.

Stated Meeting, September 15.

Present, thirty-five members.

Mr. Du Ponceau, President, in the Chair.

Dr. W. W. Gerhard, and William H. Dillingham, Esq., members elect, were presented, and took their seats.

Letters were received:—

From W. H. Dillingham, Esq., dated 14th Sept. 1843, making acknowledgments on the occasion of his election to membership:—

From the Secretary of the Royal Society of Northern Antiquaries, dated Copenhagen, 18th April, 1843, transmitting a donation:—

From the General Secretary of the Central Commission of the Geographical Society of Paris, dated 29th April, 1843, acknowledging the receipt of the 2d part of Vol. 8 of the Transactions:—

From Wm. W. Andrews, Esq., U. S. Consul at Malta, dated 3d July, 1843, transmitting a catalogue of the minerals heretofore presented to the Society:—

From Col. Von Abrahamson, dated Odensé, Denmark, transmitting a copy of the Memoirs of the Literary Society of Fionia:—

From James Ombrosi, Esq., U. S. Consul at Florence, dated 5th July, 1843, announcing the delivery to the Grand Duke of Tuscany of his diploma of membership: and thereupon the Librarian was instructed to transmit to H. I. and R. H. a copy of the Transactions, N. S., suitably bound.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen. Erster Band. Von der Jahren, 1838—1841. Mit fünf Steindrucktafeln. Göttingen, 1843. 4to.—*From the Royal Society of Sciences of Göttingen.*

Archives du Muséum d'Histoire Naturelle. Tome 2e. Livraison 3e. Tome 3e. Livraisons 1 et 2. Paris, 1841. 4to.—*From the Professors of the Museum.*

Journal Asiatique. 3e Série. Tome XIV. No. 79. 1842. 4e Série. Tome I. Nos. 1, 2, 3, 4. 1843. 8vo.—*From the Asiatic Society of Paris.*

Annales des Mines. 4e Série. Tome II. 5e Livraison de 1842. 8vo.—*From the Engineers of Mines, Paris.*

Bulletin de la Société de Géographie. Deuxième Série. Tome

XVIII. Paris, 1842. 8vo.—*From the Geographical Society of Paris.*

Boletin Enciclopedico de la Sociedad Economica de Amigos del Pais. Año 4o. Tomo 2o. No. 5o. Valencia, 1843. 8vo.—*From the Society.*

Mémoires de la Société Royale des Antiquaires du Nord. 1840—1843. Section Américaine. Copenhague, 1843. 8vo.—*From the Society.*

Mémoire sur la Découverte de l'Amérique au Dixième Siècle. Par Charles Christian Rafn. Publié par la Société Royale des Antiquaires du Nord. Second Tirage. Copenhague, 1843. 8vo.—*From the same.*

Aktstykker, for Storste Delenhidtil utrykte, til Oplysning især af Danmarks indre Forhold i ældre Tid. Odensé, 1841. 4to.—*From the Literary Society of Fionia.*

Diem Natalem Augustissimi Regis Caroli Johannis; Nec non Memoriam Regni ab Eo ante quartam Sæculi partem aditi ab Universitate Regia Fredericiana die XXVI, Januarii, MDCCCXLIII; Indicit Collegium Academicum. Christianiæ, 1843. 4to.—*From the Royal University in Christiana, Norway.*

Descriptio Ornamentorum Aureorum et Nummorum Sæculi VIII^vi^ et IX^ni^, in Prædio Hoen, in Parochia Eger in Dioecesi Norvegiæ Agershusiensi, Anni MDCCCXXXIV., mense Augusto, Repertorum; Auct. Chr. Andr. Holmboe. Christianiæ, 1835. 4to.—*From the same.*

Delphinus Leucopleurus. Nova Species Descripta ab H. Rasch, Conservatore Musei Zoologici Universitatis Regiæ Fredericianæ. Christianiæ, 1843. 4to.—*From the same.*

De Mutationibus, quas subit Momentum Virgæ Magneticæ partim ob Temporis, partim ob Temperaturæ Mutationes. Auctore Christophoro Hansteen. Christianiæ, 1842. 4to.—*From the same.*

Semina Horti Botanici Christianiensis. 1842. 4to.—*From the same.*

Flora Batava, ou Descriptions et Figures de Plantes Belgiques. Par Jan Kops, et J. E. Van der Trappen. Nos. 126 et 127. 4to.—*From His Majesty the King of the Netherlands.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Negende Deel. 2e en 3e Stuk, 4e Stuk, 1842. Leiden, 1842. 8vo.—*From the Editors.*

Journal of the American Oriental Society. Vol. I. No. 1. 1843. 8vo. Boston, 1843.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Nos. 26, 27, 28, 29. 1843. 8vo.—*From the Academy.*

Journal of the Franklin Institute of the State of Pennsylvania. 3d Series. Vol. VI. Sept. 1843. 8vo.—*From Dr. Patterson.*

The Medical News and Library. Vol. I. Sept., 1843. No. 6. 8vo.—*From Lea & Blanchard.*

An Essay on Calcareous Manures. Third Edition. By Edmund Ruffin. Petersburg, Va., 1842. 8vo.—*From the Author.*

Description of Twelve New Species of Unionеs. By Isaac Lea. Read before the American Philosophical Society, August 18, 1843. A printed Sheet, dated August 19, 1843.—*From the Author.*

Supplément aux Vindiciæ Sinicæ, ou Dernière Réponse à M. Stan. Julien. Par G. Pauthier.—*From the Author.*

On the Abuse of the Pardoning Power. By Samuel R. Wood. Philadelphia, 1839. Pamphlet. 8vo.—*From Dr. P. Tidyman.*

The President announced the decease of Mr. J. N. Nicollet, a member of the Society, who died on the 11th Sept. 1843, at Washington:—and thereupon Dr. Ducatel of Baltimore, was appointed to prepare a notice of his life and scientific labours.

Dr. B. H. Coates called the attention of the members to the head bones of a fish found upon Squam Beach, N. J., called by the fishermen, the Head-fish.

Professor Bache stated, that he had continued during the past summer the series of observations for magnetic dip and intensity, a notice of which he had formerly submitted to the Society.

The places of observation were Troy, Schenectady, Utica, Syracuse, Geneva, Rochester, Niagara Falls, Oswego and Ogdensburg, in New York State, and Toronto, Montreal and Quebec, in Canada. The same instruments were used as formerly, namely, a Robinson dipping circle with common and Lloyd needles for the usual observations of the dip, and for those of dip and intensity by the statical method of Prof. Lloyd, and a vacuum apparatus for horizontal intensity by the method of vibrations. Similar observations were made at Philadelphia before and after the journey, to connect these results with others previously obtained. Prof. Bache had the pleasure and advantage of the aid of Prof. Foster of Union College, in making these observations. The results of the Pennsylvania survey are connected directly with that now executing in the British Provinces, by the ob-

servations at Toronto and Philadelphia, by Lieut. Lefroy and Prof. Bache. Other comparisons will probably be had through the observations at Montreal and Quebec.

Professor Bache expressed the hope that the magnetic survey of the State of New York, would not be left to the desultory efforts of individuals, but would be undertaken and rendered systematic and complete, by the authorities of the State.

Professor Frazer made some remarks on the tornado of Aug. 5th, and exhibited a specimen of earth, apparently silicious, which was deposited by it in considerable quantity, within the chimneys of a house over which it passed in Delaware county, and which he regarded as bearing on the question whether the rain proceeded from a water-spout. Prof. F. had traced the line, which formed the eastern limit of the tornado, and found it to be a curve: the western line he had been unable to define. He remarked, that where its path lay through a wood, the large trees were generally prostrated, while the small ones escaped.

A similar remark had been made by Professor Bache as to the comparative destruction of the larger and smaller trees in the paths of several tornadoes which he had witnessed: and it was observed by Mr. Hassler, that it was of universal occurrence, and was referrible to the fact that the roots of young trees penetrate more deeply into the ground than those of older ones, and are besides proportionably larger.

The phenomena presented by the tornado of August had been observed in different places by others of the members. The minimum of rain, which was marked as having fallen within its range, was ten inches. The district over which it passed was very limited, but its path was such as to cover the entire course of the principal streams of Delaware county. This circumstance was adverted to as explaining the desolating height to which the waters were raised.

Mr. Kane, Reporter, announced that the Discourse of Dr. Patterson at the Centennial Celebration, with the proceedings by which it was introduced, had been printed, and was now ready for distribution. He mentioned that the Proceedings of the Centennary Meeting of the Society would be in print before the next meeting.

The Committee on the Celebration was authorized to make distribution of copies of the centennary proceedings.

On motion of Prof. Bache, the communication, entitled "On two Storms which occurred in February 1842, by Elias Loomis, of Western Reserve College, Ohio," read before the Society on the 26th of May, was referred to a Committee, consisting of Prof. Frazer, Prof. Bache, and Dr. Emerson.

The communications, entitled "On the Instruments of the Astronomical Observatory of the U. S. Military Academy, West Point," and "the Observations made upon the Comet of Feb. 1843," by Prof. W. H. C. Bartlett of the U. S. Military Academy, read 30th May, were referred to a Committee, consisting of Mr. Walker, Prof. Bache, and Prof. Kendall.

On motion of Mr. Lea, the communication, entitled "Description of some new Fossil Shells, from the Tertiary of Petersburg, Va.," by Henry C. Lea, Esq., read 30th May, was referred to a Committee, consisting of Prof. Booth, Mr. T. R. Peale, and Dr. Hays. Mr. Lea had permission to publish an abstract of his communication in anticipation of the Transactions.

Stated Meeting, Oct. 6.

Present, twenty-eight members.

Mr. Du Ponceau, President, in the Chair.

Mr. John Downes, a member elect, was presented, and took his seat.

Letters were received:—

From Hon. A. P. Upshur, Secretary of State, dated Oct. 1, 1843, transmitting eighteen volumes of public documents:—

From the Secretary of the Academy of Sciences of Turin, transmitting donations to the Library:—

From the Secretary of the Zoological Society, dated London, Dec. 2, 1842;—and from the Secretary of the Zoological Society of London, dated June 27, 1843, acknowledging the receipt of the Transactions and Proceedings of this Society:—

From James Reynolds, Esq. dated London, July, 1843, relating to the Oriental translation fund.

The following donations were announced:—

FOR THE LIBRARY.

Senate Journal, 2d Session, 27th Congress, 1841–42. 8vo. House Journal, 2d Session, 27th Congress, 1841–42. 8vo. Reports of Committees, 2d Session, 27th Congress, 1841–42. 5 Vols. 8vo. Senate Documents, 2d Session, 27th Congress, 1841–42. 5 Vols. 8vo. Executive Documents, 2d Session, 27th Congress, 1841–42. 6 Vols. 8vo.—*From the Hon. A. P. Upshur, Secretary of State.*

Report of the Twelfth Meeting of the British Association for the Advancement of Science, held at Manchester, in June, 1842. London, 1843. 8vo.—*From the British Association.*

Address to the Royal Geographical Society of London; delivered at the Anniversary Meeting on the 22d of May, 1843. By W. R. Hamilton, Esq. F. R. S., President. London, 1843. 8vo.—*From the Society.*

Society for the Encouragement of Arts, Manufactures and Commerce. Premiums for the Sessions, 1843–44, 1844–45.—*From the Society.*

Proceedings of the Royal Astronomical Society of London. Vol. V. No. 32. June, 1843. 8vo.—*From the Society.*

Proceedings of the Geological Society of London. Index to Vol. III. Vol. IV. Part 1. No. 92. 8vo.—*From the Society.*

List of the Geological Society of London, 1843. 8vo.—*From the same.*

Proceedings of the Zoological Society of London. Part X. 1842. 8vo.—*From the Society.*

Reports of the Council and Auditors of the Zoological Society of London, read at the Annual General Meeting, April 29, 1843. 8vo.—*From the same.*

Annales des Mines. Quatrième Série. Tome II. VIe Livraison de 1842, Novembre, Décembre. 8vo.—*From the Engineers of Mines, Paris.*

Memorie della Reale Accademia delle Scienze di Torino. Serie Seconda. Tomo II. III. IV., 1840–41–42. 4to.—*From the Academy.*

Catalogus Senatus Academici, et omnium alicujus gradus laurea ex-

ornatorum, in Collegio Dartmuthensi, Hanoveræ, in Republica Neo-Hantoniensi. 1843. 8vo.—*From the Northern Academy of Arts and Sciences.*

The African Repository and Colonial Journal, September, 1843. 8vo.—*From the American Colonization Society.*

A Catalogue of the Library of Brown University, in Providence, Rhode Island. With an Index of the Subjects. Providence, 1843. 8vo.—*From the Rev. Dr. Wayland.*

The Medical News and Library. Vol. I. No. 10. 1843. 8vo.—*From Lea & Blanchard.*

The American Journal of the Medical Sciences. No. 12. New Series. October, 1843. 8vo.—*From Dr. Hays.*

The Zoologist: an Illustrated Monthly Magazine of Natural History, and Journal for recording Facts and Anecdotes relating to Quadrupeds, Birds, Reptiles, Fishes, &c. &c. Edward Newman, Esq. F.L.S., F.Z.S., Editor. John Van Voorst, Publisher. London, 1843. 8vo. Nos. 1 to 8, inclusive.—*From the Editor.*

Osservazioni Geologiche sui Terreni delle Formazioni Terziaria e Cretacea in Piemonte. Si Angelo Sismonda, Prof. di Mineralogia. Extracted from the 5th Vol. 2d Series, of the Memoirs of the Royal Academy of Sciences of Turin.—*From the Author.*

Fisica de' Corpi Ponderabili ossia Trattato della Costituzione Generale de' Corpi, del Cavaliere Amedeo Avogadro. Tomo III. 1840. Tomo IV. 1841. Torino. 8vo.—*From the Author.*

Jahrbucher der Literatur. Januar, Dezember, 1842. Nos. 97 to 100, inclusive. Wien, 1842. 8vo.—*From Baron Von Hammer Purgstall.*

Beitrag zur Auflösung der Höheren Gleichungen, von Dr. Anton Vallus. Wien, 1843. 8vo.—*From the Author.*

Progress of the United States in Population and Wealth in Fifty Years, as exhibited by the Decennial Census. By George Tucker. New York, 1843. 8vo —*From the Author.*

Report of the Proceedings of an Indian Council at Cattaraugus, in the State of New York, held Sixth Month, 1843. Baltimore, 1843. 8vo.—*From George M. Justice.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. No. 482. July 22, 1843. 4to.

Annales de Chimie et de Physique. Troisième Série. Tome VIII. Mai, 1843. 8vo.

FOR THE CABINET.

A large Seal for the Society's foreign correspondence.—*From Messrs. Gobrecht and Franklin Peale.*

A Plate of Engravings of Coins, by Mr. Asa Spencer, made by the Ruling Machine.—*From Dr. Hays.*

Mr. Kane, Reporter, laid upon the table the closing number of the 2d volume of the Proceedings of the Society, and the 3d volume, containing the Proceedings of the Centennary Meeting.

The Committee, to whom Mr. Lea's paper was referred at the last meeting, reported in favour of its publication in the Transactions: and the publication was ordered accordingly.

On motion of Prof. Bache, the communication, entitled "On Hippuric Acid," by Prof. Booth and Mr. Boyé, read on the 29th of May, was referred to a Committee consisting of Prof. Frazer, Prof. Bache, and Dr. Hare:—and

The communication, entitled "On the Physical Phenomena attending Solar Eclipses," by Prof. Stephen Alexander, of Princeton, read on the 29th of May, was referred to a Committee consisting of Mr. Walker, Professor Bache, and Mr. Downes.

Dr. Ludlow, from the Committee appointed on the 16th June, 1843, on the subject of a report of the Society's doings during the past century, reported at length, and presented certain resolutions.

The first resolution from the Committee was adopted as follows:—*Resolved*, That it is expedient to have prepared a report of the scientific labours, during the past century, of the American members of the Society.

The consideration of the 2d, 3d, and 4th resolutions, prescribing the manner in which the report should be prepared, was postponed to the next meeting, and—

The Society adjourned to meet on the 13th instant.

Adjourned Meeting, Oct. 13.

Present, twenty-six members.

Dr. PATTERSON, Vice-President, in the Chair.

The Committee, to whom Prof. Loomis's communication on the Storms of February, 1842, was referred at the meeting on the 15th of September, reported in favour of its publication in the Transactions:—and the publication was ordered accordingly.

On motion of Prof. Frazer, the communications made by Mr. R. C. Taylor at the centennary meeting, "On the Geology of a Portion of the Island of Cuba," and "On some Fossil Ferns of the family Sigillaria in the Coal Strata of Pennsylvania," were referred to a Committee, consisting of Prof. Frazer, Prof. Booth, and Prof. Bache.

The Society resumed the consideration of the resolutions reported by a Committee at the last meeting; and after discussion, it was resolved as follows:—

1. That for the purpose of preparing the elements of the proposed report, it is expedient that the several subjects to be embraced in it should be distributed under appropriate general titles, and that a Committee of one or more members should be appointed to report on the scientific labours included under each title.

2. That the 2d, 3d, and 4th resolutions reported by the Committee at the last meeting, be referred back to the same Committee, with instructions to report such a distribution of the scientific labours of the members as is contemplated by the foregoing resolution, and that they also nominate one or more members to constitute each of the several Committees.

3. That on the report of that Committee being made, the Society will proceed to consider the same, and to determine the number of such Committees to be appointed, and the number of members to constitute the same respectively: and that the Society will then appoint the said Committees from among the names reported by the Committee under the 2d resolution, and such others as may be nominated at the meeting.

4. That when the reports of the several Committees shall hereafter be presented to the Society, such disposition and action shall be had in relation thereto as shall be judged proper.

Stated Meeting, October 20.

Present, twenty-eight members.

Dr. BACHE, Vice-President, in the Chair.

Letters were received and read:—

From the Librarian of Brown University, acknowledging the receipt of the 26th and 27th numbers of the Proceedings: and—

From S. S. Haldeman, Esq., dated Columbia, Pa., 4th Oct. 1843, transmitting a copy of the sixth number of his Monograph of Fresh Water Univalves.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Geological Society of London. Vol. IV. Part 1. No. 93. 1843. 8vo.—*From the Society.*

Title and Index to the Fifth Volume of the Monthly Notices of the Royal Astronomical Society.—*From the Society.*

The Transactions of the Linnean Society of London. Vol. XIX. Part Second. London, 1843. 4to.—*From the Society.*

List of the Linnean Society of London. 1843. 4to.—*From the same.*

Proceedings of the Linnean Society of London. Nos. 15 to 18, inclusive. 1842-43. 8vo.—*From the same.*

Transactions of the Royal Society of Edinburgh. Vol. XV. Part III. Containing Papers read during the Session 1842-43. Edinburgh, 1843. 4to.—*From the Society.*

Proceedings of the Royal Society of Edinburgh, 1842-43. Nos. 21, 22. 8vo.—*From the same.*

The American Journal of Science and Arts. Vol. XLV. No. 2. October, 1843. New Haven, October 5, 1843. 8vo.—*From the Editors.*

Journal of the Franklin Institute. Third Series. Vol. VI. October, 1843. No. 4. 8vo.—*From Dr. R. M. Patterson.*

Lectures on the Wave-Theory of Light. By the Rev. H. Lloyd, D.D., F.R.S., &c. &c. Printed by order of the Board of Erasmus Smith. Dublin, 1841. 8vo.—*From the Author.*

A Monograph of the Fresh Water Univalve Mollusca of the United States, including Notices of Species in other parts of North America. By S. Stehman Haldeman. Philadelphia, January, 1843. No. 6. 8vo.—*From the Author.*

The Foulahs of Central Africa, and the African Slave Trade. By W. B. Hodgson, of Savannah, Georgia. 1843. 8vo.—*From the Author.*

Catalogue of Books in the Library of Brown University. Providence, R. I., 1826. 8vo.—*From Robert Hare, M.D.*

Incorporated Society for the Propagation of the Gospel in Foreign Parts: Reports for the Years 1841 and 1842. London, Office of the Society. 8vo.—*From the Rev. Benjamin Dorr, D.D.*

A Historical Account of Christ Church, Philadelphia, from its Foundation, A. D. 1695, to A. D. 1841. By the Rev. Benjamin Dorr, D.D. Philadelphia, 1841. 8vo.—*From the Author.*

Abstract of a Paper read before the American Philosophical Society, May 20, 1843, entitled, "Descriptions of some New Fossil Shells from the Tertiary of Petersburg, Virginia." By Henry C. Lea.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 483 to 486, inclusive. August, 1843. 4to. Title and Index to Vol. XX. Altona.

Scientific Memoirs, selected from the Transactions of Foreign Academies of Science, &c. Edited by Richard Taylor, F.S.A. Vol. III. Part XII. August, 1843. London. 8vo.

Niles' National Register. From September, 1842, to March, 1843. Vol. 63. From March, 1843, to September, 1843. Vol. 64. Folio.

The Committees to whom were referred Prof. Stephen Alexander's communication, "On the Physical Phenomena attending Solar Eclipses,"—Prof. Bartlett's communications describing the Astronomical Observatory and Instruments at West Point, and giving an account of observations made there, —Mr. R. C. Taylor's two communications, entitled, "Memoir

on the Character and Prospects of the Copper Region of Gibara, and a Sketch of the Geology of the North-east part of the Island of Cuba," and "Notice of Fossil Arborescent Ferns of the Family of Sigillaria and other Coal Plants exhibited in the Roof and Floor of a Coal Seam in Dauphin County, Penn." —and the communication by Prof. Booth and Mr. Boyé, entitled, "On the Conversion of Benzoic into Hippuric Acid,"— all of which were read at the centennary meeting,—severally reported in favour of the publication of the communications referred to them; and the publication was ordered accordingly.

Dr. Bache announced the decease of Dr. Richard Harlan, a member of the Society, who died at New Orleans on the 30th of September last.

Dr. Mease laid before the Society the Proceedings of the Medico-Chirurgical Society of Louisiana, on the occasion of Dr. Harlan's death; and they were read.

Mr. Walker gave a succinct account of the condition of the questions in regard to the orbit of the comet of February, 1843, as left by observations.

He also read an extract from the Astronomische Nachrichten of August 12, in which Mr. Clausen, an assistant at the Dorpat observatory, under date of 21st April, 1843, affirms the identity of the comet of February with that of 1668 and 1689; this conclusion coinciding with that announced to the Society by Messrs. Walker and Kendall in May last, and published in the 27th No. of the Proceedings. Mr. Clausen asserts the probable return of the comet in 1865.

Stated Meeting, November 3.

Present, thirty-three members.

Dr. PATTERSON, Vice-President, in the Chair.

Professor Wylie, of Indiana University, was introduced as a visiter.

Letters were received and read:—

From the Secretary of the Asiatic Society of Bengal, dated

Calcutta, March 8, 1843, and the Secretary of the Royal Society of Sciences of Göttingen, dated Aug. 17, 1843, severally acknowledging the receipt of the Transactions and Proceedings of this Society: and—

From Francis Hopkinson, Esq., dated Nov. 2, 1843, presenting to the Society an engraving from the latest portrait of his father, Vice President Hopkinson, by Sully.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, ou Figures et Descriptions de Plantes Belgiques. Livraison, 129. 4to.—*From His Majesty the King of the Netherlands.*

Archives du Muséum d'Histoire Naturelle, Publiées par les Professeurs, Administrateurs de cette Établissement. Tome II. Livraison 4e. Tome III. Livraison 3e. 4to.—*From the Professors.*

Bulletin de la Société de Géographie. Deuxième Série. Tome XIX. Paris, 1843. 8vo.—*From the Society.*

Proceedings of the Boston Society of Natural History. Taken from the Society's Records. From January 6, 1841, to the 21st of June, 1843. 8vo.—*From the Society.*

Constitution and By-Laws of the Northern Academy of Arts and Sciences; and Second Annual Report of the Curators. Presented July 25, 1843. 8vo.—*From the Academy.*

A Catalogue of the Officers and Students of Dartmouth College. 1843–4. 8vo.—*From the College.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Tiende Deel. 2e. 3e. Stuk. Leiden, 1843. 8vo.—*From the Editors.*

ADDITION TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XVI. Nos. 1 to 25, inclusive. Tome XVII. Nos. 1 to 7, inclusive. Tables du Tome XV. Paris, 1843. 4to.

FOR THE CABINET.

An Engraved Portrait of the late Judge Hopkinson, from a Painting by Sully. Engraved by Sartain.—*From F. Hopkinson, Esq.*

The Committee to whom was referred Dr. Morton's communication, entitled, "An Inquiry into the Form of the Head and other Ethnographic Characters of the Ancient Egyptians," reported in favour of its publication in the Transactions;—which was ordered accordingly.

The communications presented at the centennary meeting by Mr. Breck, Mr. Tyson, Dr. Coates, and Mr. Gilpin, were referred to the Historical and Literary Committee, with power to take order in reference to the publication of them.

Professor Henry made an oral communication in regard to the application of Melloni's thermo-electric apparatus to meteorological purposes, and explained a modification, to which he had been led in the course of his researches, of the parts connected with the pile. He had found the vapours near the horizon powerful reflectors of heat; but in the case of a distant thunder storm, he had found that the cloud was colder than the adjacent blue space.

Referring to the theory of the discharge of the Leyden jar, which he had submitted to the Society some time since, Prof. Henry examined some apparent objections to it, resulting from the researches of Matteucci. The effect produced on the galvanometer by the discharge of a battery, is due to the retardation of the lesser waves of electricity, a fact which indicates the cause of Matteucci's results, when a card was pierced by the currents induced in a neighbouring wire conductor forming an open circuit.

Professor Henry described several experiments on the direct and return stroke, showing that equilibrium was restored by the same succession of oscillations; large and small needles placed in spirals forming part of an electrical circuit, being magnetized in different directions. The disturbance of the electrical plenum by a discharge of electricity was referred to, as explanatory of the induction which takes place; and the subject was applied to the explanation of various phenomena; among others, the light appearing in well authenticated cases about persons and objects in the neighbourhood of a discharge of lightning in its direct passage; and suggestions were made as to the most effectual mode of protecting powder houses, &c., from the effects of lightning.

Professor Henry examined in the same connexion, whether currents of ordinary electricity pass actually at the surface, or, like galvanic electricity, through the mass of the conductor; and he concluded that the law of conduction developed by Ohne cannot apply to the case of surface passages, as these are indicative of ordinary electricity.

Mr. Walker submitted a communication on behalf of Dr. Locke, of Cincinnati, in which he stated that he had calculated his magnetic observations, and that he was led to infer that the point of greatest magnetic intensity in North America is to the N. W. of Lake Superior, near its extremity, and not near Hudson's Bay, as supposed by Col. Sabine.

Prof. Bache remarked, that Lieut. Lefroy is now engaged in the magnetic survey of British North America, and that his results, in conjunction with those of Dr. Locke and others, would definitively settle this contested point. Prof. B. also read an extract from a letter of Col. Sabine, mentioning that he had received the term-day observations of Lieut. Lefroy at Lake Winnipeg, and that an excellent northern station for the term-days would be had at Lieut. Lefroy's winter quarters.

Prof. Bache added, that the extra term-days of July had been kept, and the daily observations made on the first ten days, at the Magnetic Observatory of the Girard College.

A communication of Prof. Henry, in continuation of his researches on electro-dynamic induction, was referred to a Committee, consisting of Dr. Patterson, Prof. Bache, and Mr. Lukens.

Dr. Ludlow, from the Committee on the report of the Society's scientific proceedings during the past century, presented a request that the Committee should be discharged from further action under the resolution of the Society: and thereupon, on his motion, the Committee was discharged.

Stated Meeting, November 17.

Present, twenty-two members.

Dr. BACHE, Vice-President, in the Chair.

A letter was received from H. J. Bowditch, Esq., Clerk of the Bowditch Library, dated Oct. 28, 1843, acknowledging the receipt of the Proceedings, No. 27.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. I. Nos. 30, 31. September and October, 1843. 8vo.—*From the Academy.*

The African Repository, and Colonial Journal. Vol. XIX. No. 10. October, 1843. 8vo.—*From the American Colonization Society.*

Pantography, or Universal Drawings, in the Comparison of their Natural and Arbitrary Laws, with the Nature and Importance of Pasigraphy, as the Science of Letters, &c. By Benajah J. Antrim. Philadelphia, 1843. 8vo.—*From the Author.*

The United States Almanac; or Complete Ephemeris for the Year 1844; By John Downes: The Statistical Part by Freeman Hunt. Vol. II. Philadelphia. 8vo.—*From John Downes.*

De Skandinaviske Naturforskeres tredie Möde, i Stockholm i 1842. Christinia, 1842. 8vo.—*From Dr. Hays.*

Förhandlingar vid det af Skandinaviska Naturforskare och Läkare hållna möte i Götheborg år 1839. Götheborg, 1840. 8vo.—*From the same.*

A Lecture on the Oregon Territory. By Peter A. Browne, LL.D., of Philadelphia. 1843. 8vo.—*From the Author.*

Remarks on Tides, and the Prevailing Currents of the Ocean and Atmosphere. By W. C. Redfield. From the American Journal of Science and Arts. Vol. XLV. No. 2. 8vo.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XVII. Nos. 8 to 11, inclusive. 4to.

Mr. Kane announced the death of Col. John Trumbull, a member of the Society, who died recently at New York, aged 87.

Professor Bache presented observations of meteors on the mornings of the 12th and 14th of November, from midnight until 2 A. M., those having been the only clear mornings from the 9th to the 17th of the month. He submitted also some observations made by him in conjunction with Mr. Espy, for the parallax of meteors on the night of the 14th; the evening of the 13th having been so cloudy as to prevent observations. The numbers were below the ordinary average for a clear night.

Mr. G. W. Smith had also made observations on the nights of the 12th, 13th, and 14th, with results corresponding generally to those of Prof. Bache.

Dr. Hays gave an account of a case of spontaneous combustion, which occurred in a heap of Virginia coal lying in the yard of the Northern Liberties gas works, soon after a fall of rain. Dr. H. exhibited specimens of the coal partially converted into coke, and adverted to the circumstances under which the combustion had occurred, which justified the conclusion that it was spontaneous.

Dr. Patterson mentioned a work executed by Dr. Joseph Rhoads, at the farm of his father at Haverford, near Philadelphia, for procuring a supply of water for the house, which he thought might be imitated in many other situations. There were wells at the house and barn, cut through rock, and thirty-five feet deep. It occurred to Dr. Rhoads that water might be found, higher up the hill, at such a level as to give a supply at or above the level of the house itself; and he fixed, for this purpose, upon a bed of sand at the side of the road. Here he found water at the depth of five feet, and an abundant supply by digging seven feet deeper. From this source the water was conveyed to the house, at such a height that it might have run into the mouth of the old well, and it furnished a constant stream of a gallon per minute. The water in the old well was hard, that from the new source, soft. The whole cost of the operation was but thirty-five dollars.

Dr. Hays exhibited a piece of iron, weighing fifteen grains.

which had been extracted by him from the eye of a man, who was ignorant of its having entered it. The presence of some foreign substance in the ball of the eye was inferred from the constant inflammation kept up in the organ.

Stated Meeting, December 1.

Present, eighteen members.

Dr. PATTERSON, Vice President, in the Chair.

Letters were received:—

From the President of Harvard University, dated Oct. 18, 1843, acknowledging the receipt of No. 26 of the Proceedings:—

From William B. Rally, Esq., dated Baltimore, Nov. 20, 1843, on the subject of a proposed scientific correspondence between the Royal Academy of Bohemia and this Society:—

From Sir William Jardine, dated Jardine Hall (Scotland), Oct. 28, 1843, in regard to his work on the Scottish Salmonidæ.

The following donations were announced:—

FOR THE LIBRARY.

Journal Asiatique. Quatrième Série. Tome I. Nos. 5 et 6. Mai et Juin, 1843. 8vo.—*From the Asiatic Society of Paris.*

Annales des Mines. Quatrième Série. Tome III. 1ère Livraison. Paris, 1843. 8vo.—*From the Engineers of Mines.*

Transactions of the Historical and Literary Committee of the American Philosophical Society. Vol. III. Part I. Philadelphia, 1843. 8vo.—*One copy presented by Samuel Breck, Esq., and one copy by Job R. Tyson, Esq.*

Journal of the Franklin Institute. Vol. VI. Nov. 1843. 8vo.—*From Dr. R. M. Patterson.*

The African Repository, and Colonial Journal. Vol. XIX. No. 11. November, 1843. 8vo.—*From the American Colonization Society.*

A Manual of Gold and Silver Coins of all Nations, struck within the

past Century, &c. &c. By Jacob R. Eckfeldt and William E. Du Bois, Assayers of the Mint of the United States. Philadelphia, 1842. 4to.—*From the Authors.*

Memoir on the Reconnaissance of Rivers. Translated from the French by Lieut. W. R. Palmer, U. S. Corps of Topographical Engineers. Philadelphia, 1843. 8vo. 2 copies.—*From the Translator.*

Vierter Bericht über das Museum Francisco-Carolinum. Linz, 1840. 8vo.—*From the Rev. Professor Rally, of Baltimore.*

Fünfter Bericht über das Museum Francisco-Carolinum. Linz, 1841. 8vo.—*From the same.*

Sechster Bericht über das Museum Francisco-Carolinum. Linz, 1842. 8vo.—*From the same.*

Zweyter Bericht über die Leistungen des Vaterländischen Bereines zur Bildung eines Museums für das Erzhervogthum Oesterreich ob der Enns und das Herzogthum Salzburg. Linz, 1836. 4to. *From the same.*

Der Führer im Salzkammergute und auf der Linz. By W. B. Rally. Wien, 1841. 12mo.—*From the same.*

Die Donaureise von Regensburg bis Linz. By W. B. Rally. Wien, 1840. 12mo.—*From the same.*

Statuten des Bereines: Museum Francisco-Carolinum. Linz, 1841. 8vo.—*From the same.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Journal Général de la Littérature de France. Douzième Cahier. Décembre, 1841. 8vo.

Title and Index to L'Institut. 1ère Section, Tome X. 2ème Section, Tome VII.

Astronomische Nachrichten. Nos. 487, 488. September, 1843. 4to.

Dr. Bache announced the death of Mr. Ferdinand Rudolph Hassler, a member of the Society, at the age of 73 years, which occurred in this city on the 21st of November last.

Mr. Thomas Gilpin read an Essay on the Position of the Organic Remains, as connected with a former tropical region of the earth.

The general principle advocated in this essay is, that the position of the organic remains gives evidence that in a former zone of equatorial heat the tropical products encircled the earth uniformly, and of course under different influences from any of the present climates.

The location of this zone, for which the appellative of *the organic zone* is assumed, is on a south-west direction as it passes from the north-east of Europe. It is indicated from thence by the fossil remains of ancient animals, and by the consecutive coal field districts of Germany, France, England and Ireland; and it is again found through Newfoundland and Nova Scotia; and, with the exception of the granite region of New England, it is largely developed through the centre of the United States, as in Pennsylvania, Ohio, and the Mississippi country and Texas; and thus it is *specifically established* through *one-third of the circuit of the earth.*

Continuing in the same course, it crosses in a straight line into the southern hemisphere, and appears in New Zealand, New Holland, part of China, the Kingdom of Ava, and the Himalaya Mountains, so as to come to the commencement of the circuit.

In all this latter part of the route, through the islands and through Asia, coal is found under the same circumstances and appearances as in Europe and America; and along all the circuit, the fossils of the great elephantine animals are more largely distributed than on any other part of the earth: they have also been taken, in this course, out of the ocean and deep sea of the British Channel, along the shores of which they are found on the recess of the waters. But the essay states that the theory does not depend upon the location of the remains of these animals, "*partly migratory*" in search of feeding ground in changes of climate, but upon vegetable and animal remains of the more resident animals of the land and ocean—for "*these have not migrated.*"

The facts claimed in favour of this essay are stated to be,—

1. That there is around the earth, in the direction described, a uniform zone of former vegetable and animal life, to which the fossil remains belong.

2. That the zone has been tropical or torrid, and has passed through nearly all the present climates.

3. That a uniformity of products has been found in many places, but not noticed heretofore to have pertained to a general connexion.

The general principles of this essay are offered as a substitution for the former hypothesis, which attributed the anterior existence of the tropical plants in the cold latitudes to an original high state of heat of the earth, and that they grew upon it when it had become cooled to a proper temperature to favour them; and a statement is made of the comparative claim of both these propositions.

The essay closes with a general reference to the changes which

have taken place in the climates and waters of the earth, by the gradual influences of the precession of the equinoxes and the perihelion position, during the astronomical course under which the sun and earth have been related to each other.

In the course of the essay, references are made largely to the geological authorities.

Professor Bache, on behalf of Dr. John Locke of Cincinnati, communicated the results of four magnetic tours in the United States and Territories. Dr. Locke proposes to communicate the details of his observations at a future day.

The Treasurer submitted his annual account; and Mr. Lea presented the Report of the Publication Committee.

Dr. Patterson, from the Committee on the erection of an Observatory, and the Committee on the Museum property, reported finally; and on his motion, the Committees were discharged.

Stated Meeting, Dec. 15.

Present twenty-four members.

Dr. Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Secretary of the Society of Antiquaries, dated London, Nov. 17, 1843, acknowledging the receipt of the Transactions and Proceedings:—and

From Mr. W. P. Smith, dated Dec. 15, 1843, in reference to certain taxes on the Museum property.

The letter of Mr. Smith was referred to the Finance Committee, to report thereon.

The following donations were announced:—

FOR THE LIBRARY.

The Medical News and Library. Vol. I. No. 2. December, 1843. 8vo.—*From Lea & Blanchard.*

Introductory Lecture before the Medical Class of the University of Pennsylvania, delivered November 9th, 1843. By W. E. Horner, M.D. 8vo.—*From the Author.*

Notice of some Works, recently published, on the Nomenclature of Zoology. By Augustus A. Gould, M.D. From Silliman's Journal of Science for April. June, 1843. 8vo.—*From the Author.*

Monograph of the Species of the Genus Papa found in the United States. By Augustus A. Gould, M.D. Extracted from the Boston Journal of Natural History, Vol. III. and Vol. IV. 8vo.—*From the same.*

An Essay on Organic Remains, as connected with an Ancient Tropical Region of the Earth. By Thomas Gilpin. Philadelphia, 1843. 8vo.—*From the Author.*

In pursuance of recommendations from the Committee of Finance, the following appropriations were made for the use of the coming year, viz.—

Proceedings, - - -	$300
Binding, - - - -	200
Hall, - - - -	100
Journals, - - - -	200
General account, - - -	700

Dr. Hays mentioned that Mr. Whipple, of Missouri, is desirous of disposing of a large collection of the bones of the Tetracaulodon, now in this city; and he invited the members to unite with him in making the purchase for the Society's Museum.

Mr. Ord drew the attention of the Society to the fact, that the late Mr. Hassler was in possession of certain instruments loaned to him by Mr. Vaughan, which, by the will of Mr. Vaughan, had become the property of the Society: and the Curators were instructed to take measures for replacing them in the Society's Cabinet.

Mr. Ord also mentioned, that he had found, among the papers of the Society, a receipt from Mr. Gallatin for certain maps, lent to him by the Society to be used in the negotiations respecting the N. E. boundary of the United States: and the Librarian was instructed to take measures for recovering the maps referred to.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JAN.—APRIL, 1844. No. 29.

Stated Meeting, January 3.

Present, twenty-three members.

Dr. PATTERSON, Vice-President, in the Chair.

The judges and clerks of the annual election held this day, reported the appointment of the following officers:—

President.

Peter S. Duponceau, LL.D.

Vice-Presidents.

Nathaniel Chapman, M.D.,
Robert M. Patterson, M.D.,
Franklin Bache, M.D.,

Secretaries.

John K. Kane.
Alexander Dallas Bache, LL.D.,
Robley Dunglison, M.D.,
Joshua Francis Fisher.

Counsellors for Three Years.

Robert Hare, M.D.,
William Hembel,
Charles D. Meigs, M.D.,
Henry Vethake, LL.D.

Curators.

Isaac Hays, M.D.,
Franklin Peale,
John P. Wetherill.

Treasurer.

George Ord.

Letters were received:—

From the Geological Society of London, dated Nov. 2, 1843,—the Society for the Encouragement of Arts, Manufactures and Commerce, dated November 3, 1843,—the Royal Academy of Sciences of Berlin, dated August 15, 1843,—and the Museum of Natural History of Paris, dated Nov. 9, 1843, acknowledging the receipt of Transactions and Proceedings of this Society:—

From the Royal Academy of Sciences of Copenhagen, dated May 12, 1843, and the Royal Academy of Sciences of Berlin, dated August 15, 1843, announcing the transmission of donations:—

From Albert Gallatin, dated New York, December 19, 1843, on the subject of certain Maps lent by this Society to the Government of the United States, and announcing that they cannot be recovered in consequence of their having been appropriated to public purposes:—

From Henry Denny, dated Leeds, Nov. 4, 1843, stating the intention of the Philosophical and Literary Society of Leeds to become a correspondent of this Society:—

From B. Silliman, Jr., Secretary of the Association of American Geologists and Naturalists, dated December 23, 1843, announcing that the Annual Meeting of the Association will take place at Washington on the 10th of May next:—

From M. Orazio de St. Angelo, dated New York, December 29, 1843, on the subject of a donation from Signor di Luca, of Naples.

The following donations were announced:—

FOR THE LIBRARY.

Address of the Most Noble the Marquis of Northampton, the President, read at the Anniversary Meeting of the Royal Society, on Wednesday, November 30, 1842. 8vo.—*From the Royal Society of London.*

Transactions of the Philosophical and Literary Society of Leeds, consisting of Papers read before the Society. Vol. I. Part 1. London, 1837. 8vo.—*From the Society.*

The Laws and Regulations of the Philosophical and Literary Society

of Leeds, (instituted the 14th of January, 1820), revised and corrected to May 7, 1841. 8vo.—*From the same.*

An Account of an Egyptian Mummy, presented to the Museum of the Leeds Philosophical and Literary Society, by the late John Blayds, Esq. Drawn up at the request of the Council, by Wm. Osburn, Jr., F.R.S., Secretary to the Society. Leeds, 1828. 8vo.—*From the same.*

Reports of the Council on the General State of the Leeds Philosophical and Literary Society, to wit:—Fifth, Sixth, Seventh, Eleventh, to Twenty-third, inclusive. Sixteen in all. 8vo.—*From the same.*

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1841. Erster Theil. Berlin, 1843. 4to.
Zweiter Theil. „ „ „
Dritter Theil. „ „ „
From the Royal Academy of Sciences of Berlin.

Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin. July to September, 1842—January to June, 1843. 8vo.—*From the same.*

Det Kongelige Danske Videnskabernes Selskabs Naturvidenskabelige og Mathematiske Afhandlinger. Niende Deel. Copenhagen, 1842. 4to.—*From the Royal Society of Sciences of Copenhagen.*

Oversigt over det Kgl. Danske Videnskabernes Selskabs Forhandlinger og dets Medlemmers Arbeider, i Aaret 1842. Copenhagen, 1843. 8vo.—*From the same.*

Proceedings of the American Antiquarian Society, at their Thirty-first Annual Meeting, held at Worcester, October 23, 1843, with the Address of the Hon. John Davis. 8vo.—*From the Society.*

Boston Journal of Natural History. Containing Papers and Communications read before the Boston Society of Natural History, and published by their direction. Vol. IV. No. 3. Boston, 1843. 8vo.—*From the Society.*

Journal of the Franklin Institute. 3d Series. Vol. VI. December, 1843. 8vo.—*From Dr. R. M. Patterson.*

The African Repository and Colonial Journal. December, 1843. Vol. XIX. No. 12. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. I. Nov. 1843. No. 11.

Vol. II. January, 1844. No. 13. 8vo.—*From Lea & Blanchard.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XIII. New Series. January, 1844. 8vo.—*From the Editor.*

Ultimi Progressi della Geografia sunto letto nei dì 16, 21 e 27, Settembre, 1842, alla Sezione dì Geologia, Mineralogia e Geografia della quarta Riunione degli Scienziati Italiani, ch'ebbe sede in Padova. Da Jacopo Grâberg da Hemso. Estratto dal 6°. Volume del Politecnico di Milano. 1843. 8vo.—*From the Author.*

History of the Conquest of Mexico, with a Preliminary View of the Ancient Mexican Civilization, and the Life of the Conqueror, Hernando Cortes. By William H. Prescott. New York, 1843. 3 Vols. 8vo.—*From the Author.*

Tables for the Extemporaneous Application of Corrections for Temperature to Barometric Observations. By S. Elliott Hoskins, M.D. Guernsey, 1842. 8vo.—*From the Author.*

Observations of the Aurora Borealis. From Sept. 1834, to Sept. 1839. By Robert Snow, Esq. London, 1842. 12mo.—*From the Author.*

An Introductory Lecture to the Course of Institutes of Medicine, &c. in Jefferson Medical College: delivered Nov. 8th, 1843, by Prof. Dunglison. 8vo.—*From the Author.*

Documents of Congress. 27th Congress, 3d Session. House of Representatives, Treasury Department. Doc. 220.—*From the Hon. J. R. Ingersoll.*

Magazine of Zoology and Botany. Conducted by Sir Wm. Jardine, Bart., P. J. Selby, Esq. and Dr. Johnston. Vols. I. and II. 1836–37–38. Edinburgh. 8vo.—*From Sir William Jardine, Bart.*

Annals of Natural History; or Magazine of Zoology, Botany and Geology. Being a continuation of the Magazine of Zoology and Botany, and Sir W. J. Hooker's Botanical Companion. Conducted by Sir W. Jardine, Bart., P. J. Selby, Esq., Dr. Johnston, Sir W. J. Hooker, and Richard Taylor. New Series. Nos. 1 to 33, inclusive. London, 1838–40. 5 Vols. 8vo.—*From the same.*

The Annals and Magazine of Natural History, including Zoology, Botany and Geology. Being a continuation of the Magazine of Botany and Zoology, and of Loudon and Charlesworth's Magazine of Natural History. Conducted by Sir W. Jardine, Bart.,

P. J. Selby, Esq., Dr. Johnston, David Don, Esq. and Richard Taylor. Nos. 34 to 76 inclusive. London, 1840–43. 8vo.—*From the same.*

Zoological Contributions. By S. S. Haldeman. No. 2. December, 1843. 8vo.—*From the Author.*

A Monograph of the Limniades or Fresh water Univalve Shells of North America. By S. Stehman Haldeman. No. 5. July, 1842. 8vo.—*From the same.*

Medicinisches Schriftsteller-Lexicon der jetzt lebenden Verfasser. Von Dr. Adolph Carl Peter Callisen. Neunundzwanzigster Band. His-Lem. 8vo. Copenhagen, 1841. Dreissigster Band. Lex-M. 1842. Einunddreissigster Band. N-Rop. 1843.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 489, 490. October, 1843. 4to.

The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. Third Series. Vol. XXII. April to July, inclusive. Vol. XXIII. July to November, inclusive. Nos. 145 to 153, inclusive.

The Edinburgh New Philosophical Journal, conducted by Professor Jameson. Nos. 62 to 70, inclusive. Edinburgh, 1841–43. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secrétaires Perpétuels. Tome XVII. Nos. 12 to 17, inclusive. Paris. September and October, 1843. 4to.

FOR THE CABINET.

A Copy, in type metal, of a Jewish Shekel.—*From Mr. Justice.*

A large Collection of Fossil Bones of the Mastodon, Tetracaulodon, &c., purchased of Mr. Whipple, at the instance of Dr. Hays, by the following named members of the Society, and by them presented to the Cabinet: Dr. Hays, Dr. Patterson, Mr. Kane, Mr. Frazer, Mr. Fraley, Dr. Bache, Rev. Dr. Bethune, Mr. Roberts, Dr. Dunglison, Mr. Lea, Dr. Wood, Mr. J. P. Wetherill, Mr. Hembel, Mr. Justice, and Dr. W. E. Horner.

The following notice of the Mastodon bones accompanied the donation:—

"These bones were found in the County of Benton, Missouri, about one-half mile from the river Osage, seventy miles south of the Mis-

souri river, at Boonville; in North latitude, 38° 10′, and in 16° 40′ West longitude. The County of Benton, south of the Osage, and bordering thereon, is characterized for its irregular and broken appearance, running up into extensive ridges, rocky cliffs, and flinty knobs. These elevations, though far from being mountainous, nevertheless, afford views of the surrounding country, beautiful, extensive, and in many instances, sublime. Again valleys intervene, through which meander some streams of water, bordered by alluvial bottoms and lofty forests. It was in such a country as this, to all appearance, that the Mastodon delighted to dwell, and there his bones are found most numerous.

"In one of the valleys named, just at the point where a fertile bottom is connected with a more elevated region, is a small saline marsh, perhaps of an acre in extent. One half of this marsh is covered by a soil different from that composing the marsh, but partaking of the character of a ridge of land, of one-eighth to one-fourth of a mile distant, and which runs parallel with the bottom above-named. This ridge is composed in part of a species of limestone, columns of which are at intervals left standing, and in some instances of from ten to twenty feet elevation above the surrounding portions of the ridge. Between this ridge and the marsh the ground declines gently, and was formerly covered with oak timber. It is now a cultivated field. The soil of this field also bears evidence of having been washed, or otherwise conveyed from the ridge. One-half of the marsh, as above stated, is covered with this soil, and to the extent of about ten feet. It was under this deposite, and to the depth of from two to twelve feet imbedded in the marsh, that these bones were found, lying in the greatest confusion and disorder.

(Signed,) "S. H. WHIPPLE."

On motion of Mr. Kane, a Committee was appointed to revise the laws and regulations of the Society. Mr. Kane, Mr. Ord, and Dr. Patterson form the Committee.

Mr. Kane announced the reappointment, by the Secretaries, of Dr. Dunglison as Corresponding Secretary, and also his appointment as Reporter of the Society's Proceedings for the present year.

Stated Meeting, Jan. 19.

Present, twenty-eight members.

Mr. Du Ponceau, President, in the Chair.

Letters were received:—

From the Literary and Philosophical Society of Manchester, dated Manchester, Feb. 16, 1843, accompanying a donation of the Memoirs of that Society:—

From Dr. Callisen, dated Altona, Oct. 23, 1843, acknowledging his election as a member of this Society, and presenting a donation of books.

The following donations were announced:—

FOR THE LIBRARY.

Memoirs of the Literary and Philosophical Society of Manchester. Second Series. Vol. VII. Part 1. London, 1843. 8vo.—*From the Society.*

Journal Asiatique. Quatrième Série. Tome II. No. 7. Juillet, Août, 1843. No. 8. Septembre, Octobre, 1843. 8vo.—*From the Asiatic Society of Paris.*

Annales des Mines. Quatrième Série. Tome III. 2e et 3e livraisons. 1843. 8vo.—*From the Engineers of Mines, Paris.*

Transactions of the Agricultural and Horticultural Society of India. Vol. III. Calcutta, 1841. 8vo.—*From the Society.*

Journal of the Agricultural and Horticultural Society of India. Vol. I. Nos. 1 to 5, inclusive. Calcutta, 1842. 8vo.—*From the same.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. I. Nov. Dec. 1843. Nos. 32, 33. 8vo.—*From the Academy.*

The American Journal of Science and Arts. Vol. XLVI. No. 1. January, 1844. 8vo.—*From the Editors.*

Zoological Contributions. By S. S. Haldeman. No. 3. January, 1844. 8vo.—*From the Author.*

Douzième et Treizième Rapports sur les Travaux de la Société d'Histoire Naturelle de l'Ile Maurice, lus dans les Séances anniversaires du 24 Août, 1841, et du 24 Septembre, 1842. Par M. L. Bouton. Maurice, 1843. 4to.—*From M. L. Bouton.*

Report of the Committee appointed to inspect the Machine lately

erected at Tresavean Mine, for facilitating the ascent and descent of Mines. From the Transactions of the Royal Cornwall Polytechnic Society.—*From Robert Were Fox, Esq.*

Purport of a Paper relative to Springs of Water. From the Transactions of the same Society. Appendix, No. 1.—*From the same.*

Report of the President and Managers of the Schuylkill Navigation Company to the Stockholders, January 1, 1844. 8vo.—*From S. W. Roberts.*

A Copy of the Minutes of the Commissioners for determining the Line between Pennsylvania and Maryland; taken from an authenticated Copy in the possession of F. R. Hassler, by George M. Justice, 1842. To which is appended, Original Vouchers, exhibiting the Amount paid by the Penn Family, from the Year 1760 to 1768, to their Commissioners. Folio. MS.—*From Geo. M. Justice.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus des Séances de l'Académie des Sciences. Tome XVII. Nos. 18 to 21, inclusive. 1843. Tome XIV. No. 22. 4to.

Journal Asiatique, 3e Série. Tome XIII. No. 72. Tome XIV. No. 79. 8vo.

Annales des Mines, Troisième Série. Tome III. No. IV. 1833. Tome V. 1834. Tome XVII. 1en. Livraison de 1840. 8vo.

Annales Chimie et de Physique. Troisième Série. Tome VIII., Juin, Juillet, Août. Tome IX., Septembre, Octobre. 8vo.

Histoire Naturelle des Poissons, par M. le Baron Cuvier, et par M. Valenciennes. Tomes 8 to 16, inclusive. Paris, 1831, 1842. 4to.

Mr. Smith exhibited an artificial magnet, having a south pole at each extremity, and a north pole at the centre, which had been handed to him by one of the superintendents of the magnetic observatory at the Girard College. Mr. Smith made some remarks upon it, which gave occasion to further observations from Dr. Bache and Professor Frazer.

Agreeably to a provision of the by-laws, the list of surviving members of the Society was read. From this it appears that the number on the first day of the present year was 344, whereof 233 are residents of the United States, and 111 of foreign countries.

Mr. Ord was re-elected Librarian.

The following standing Committees were appointed for the year:

Of Finance.—Mr. C. C. Biddle, Dr. Patterson, and Mr. Kuhn.

Of Publication.—Mr. Lea, Dr. Hays, and Mr. Fisher.

On the Hall.—Mr. Campbell, Mr. Smith, and Mr. Fraley.

On the Library.—Dr. Hays, Mr. Campbell, and Mr. Penington.

The following gentlemen were elected members of the Society:

Theodore Strong, Professor, Rutgers College, N. Jersey.

Alfred L. Elwyn, M.D., of Philadelphia.

Robert Bridges, M.D., of Philadelphia.

John W. Draper, M.D., Professor, University of N. York.

W. A. Norton, Professor, Delaware College.

J. W. Francis, M.D., New York.

W. C. Redfield, New York.

G. T. Mower, M.D., U. S. Army.

John Locke, M.D., Professor, Cincinnati.

Alonzo Potter, Professor, Union College, Schenectady.

Roger B. Taney, Chief Justice of the United States.

Joseph Story, Judge of the Supreme Court of the United States.

Benjamin F. Butler, late Attorney General of the United States.

Jacob J. Eckfeldt, United States Mint.

William E. Dubois, do.

John C. Trautwine, of Philadelphia.

John L. Hart, Principal of the High School.

Stated Meeting, February 2.

Present, thirty-six members.

Dr. Chapman, Vice-President, in the Chair.

Messrs. Elwyn, Trautwine, Eckfeldt, Du Bois, and Hart, newly elected members, were presented to the presiding officer, signed the constitution, and took their seats.

Letters were received:—

From Judge Story, dated Jan. 23, 1844,—Mr. John C. Trautwine, dated Philadelphia, Feb. 1, 1844,—Professor Norton, dated Delaware College, Jan. 23, 1844,—Professor T. Strong, dated New Brunswick, Jan. 26, 1844,—Professor Hart, dated Philadelphia, Jan. 20, 1844,—Mr. Redfield, dated New York, Jan. 29, 1844,—Dr. J. W. Draper, dated New York, Jan. 24, 1844,—Dr. Robert Bridges, dated Philadelphia, Jan. 29, 1844, severally acknowledging their election as members of the Society:—

From the Institute of France, dated Paris, Nov. 13, 1843,—the Royal Society of Sciences, Agriculture and Arts, of Lille, dated Lille, May 10, 1843,—the Royal Academy of Sciences and Belles Lettres of Bruxelles, dated Bruxelles, Sept. 12, 1843,—the Linnean Society, dated London, Nov. 23, 1843,—the Royal Asiatic Society, dated London, Nov. 11, 1843,—the London Electrical Society, dated London, March 1 and July 4, 1842; Jan. and July 4, 1843, accompanying Proceedings of that Society, and a number of a periodical edited by the Honorary Secretary, Mr. Charles V. Walker,—Mr. E. Newman, dated London, Nov. 2, 1843, acknowledging the receipt of Transactions and Proceedings of this Society, and transmitting certain works to this Society:—

From M. Quetelet, dated Bruxelles, Sept. 12, 1843, on transmitting certain works to the Society,—the Meteorological Society of Great Britain, dated London, Jan. 1843, in reference to the objects, &c. of that Society,—the Royal Polytechnic Union of London, dated London, Sept. 1842, in reference to certain works which they propose to publish,—a Committee appointed at a meeting of certain stockholders of the Philadelphia Museum Company, dated Philadelphia, Jan. 22, 1844,—the Consul of the United States, Mr. Aspinwall, dated London, July 20, 1843, in reference to certain parcels from the London Electrical Society which he had forwarded to this Society,—Mr. W. Wheelwright, dated London, Dec. 4, 1843, accompanying a donation to the Library.

The following donations were announced:—

FOR THE LIBRARY.

Nouveaux Mémoires de l'Académie Royale des Sciences et Belles Lettres de Bruxelles. Tome XVI. Bruxelles, 1843. 4to.—*From the Academy.*

Mémoires Couronnés et Mémoires des Savants Étrangers, publiés par l'Académie Royale des Sciences et Belles Lettres de Bruxelles. Tome XV. 2me Partie. 1841, 1842. Bruxelles, 1843. 4to.—*From the same.*

Instructions pour l'Observation des Phénomènes Périodiques. Par le Secrétaire Perpétuel, M. Quetelet. 4to.—*From the same.*

Annuaire de l'Académie Royale des Sciences et Belles Lettres de Bruxelles. Neuvième Année. Bruxelles, 1843. 18mo.—*From the same.*

Bulletins de l'Académie Royale des Sciences et Belles Lettres de Bruxelles. Année, 1842. Tome IX. 2me Partie. Nos. 7 to 12, inclusive. Bruxelles, 1842. 8vo. Tome X. 1re Partie. Nos. 1 to 6, inclusive. Tome X. 2me Partie. No. 7.—*From the same.*

Proceedings of the Geological Society of London. Vol. IV. Part I. Nos. 94, 95, 96. 1843. 8vo.—*From the Society.*

Proceedings of the Royal Irish Academy, for the Year 1841–2. Part VI. Dublin, 1843. 8vo.—*From the Academy.*

Proceedings of the London Electrical Society. Parts IV. VI. VII. and VIII. London, 1842–3. 8vo.—*From the Society.*

The Tenth Annual Report of the Royal Cornwall Polytechnic Society. Parts 1 and 2. Falmouth, 1843. 8vo.—*From the Society.*

Astronomical Observations made at the Royal Observatory, Edinburgh. By Thomas Henderson, F.R.SS. L. and E., &c. Vol. V. For the Year 1839. Published by order of Her Majesty's Government. Edinburgh, 1843. 4to.—*From the Royal Society of London.*

A Catalogue of the Library of the London Institution, systematically classed. Vol. III. London, 1843. 8vo.—*From the Managers of the Institution.*

Journal of the Franklin Institute. Third Series. Vol. VII. January, 1844. No. 1. 8vo.—*From Dr. R. M. Patterson.*

The African Repository, and Colonial Journal. January, 1844.

Vol. XX. No. 1. 8vo.—*From the American Colonization Society.*

Sur l'Emploi de la Boussole dans les Mines. Par M. Quetelet, Directeur de l'Observatoire Royal, à Bruxelles. 1843. 8vo.—*From the Author, M. Quetelet.*

Rapports Adressés à M. le Ministre de l'Intérieur sur l'État et les Travaux de l'Observatoire Royal pendant l'année, 1841, et l'année, 1842. 8vo.—*From the same.*

Annuaire de l'Observatoire Royal de Bruxelles. Par le Directeur, A. Quetelet. Dixième année, 1843. 18mo.—*From the same.*

Discours Prononcé par M. Nothomb, Ministre de l'Intérieur, dans la Séance de la Chambre des Représentants, du 18 Mars, 1843. 8vo.—*From the same.*

The British Almanac of the Society for the Diffusion of Useful Knowledge, for the Year of our Lord 1844, being Bissextile, or Leap Year. London. 12mo.—*From Petty Vaughan, Esq.*

Knight's London, No. 123, containing the Account of the Society of Arts. 8vo.—*From the same.*

The Zoologist: an Illustrated Monthly Magazine of Natural History, &c. Nos. IX. to XII. inclusive. September to December, 1843. 8vo.—*From Edward Newman, Esq.*

The System of Nature; an Essay. By Edward Newman, F.L.S., Z.S., &c. Second Edition. London, 1843. 8vo.—*From the same.*

The Electrical Magazine, conducted by Mr. Charles V. Walker. Published quarterly. Vol. I. No. 1. July, 1843. 8vo. London.—*From the Editor.*

The Quarterly Journal of Meteorology and Physical Science. Published under the immediate sanction and direction of the Meteorological Society of Great Britain. Edited by J. W. G. Gutch, M.R.C.S. No. VI. April, 1843. London. 8vo.—*From the Editor.*

Mr. Wheelwright's Report on Steam Navigation in the Pacific; with an Account of the Coal Mines of Chili and Panama. London, 1843. 8vo.—*From the Author.*

The Medical News and Library. Vol. II. February, 1844. No. 14. 8vo.—*From Lea & Blanchard.*

A Plate of Diagrams, entitled, "Circles to assist Seamen in the Practical Application of the Theory of Revolving Winds. By W. R. —*From Lieut. Col. Wm. Reid, F.R.S.*

Message from the President of the United States to the Two Houses

of Congress, December 5, 1843. 28th Congress, 1st Session. House of Rep., Doc. No. 2.—*From the Hon. Joseph R. Ingersoll, M.C.*

Dr. Bache announced the death of Judge Gaston, a member of the Society, who died at Raleigh on the 23d ultimo.

Dr. Hays drew the attention of the Society to a series of bones now being exhibited in the basement of the Society's building. They are chiefly those of the elephant and mastodon; the former being larger than any that have been described. There are in the collection several specimens of immense teeth of the elephant, of much greater size than any that Dr. Hays has seen recorded. He thought the bones well worthy the attention of the curious, and of those interested in science.

In reply to a question from Mr. Justice, Dr. Hays stated that they had been found in Missouri, near the place where the bones were discovered by Mr. Koch.

Mr. Smith stated, that the Bude and other lights just arrived from Europe would be exhibited to a few gentlemen at the Franklin Institute, and suggested that members of the Society might wish to repair thither after adjournment.

Stated Meeting, February 16.

Present twenty-four members.

Dr. Patterson, Vice-President, in the Chair.

Dr. Bridges, a newly elected member, was presented to the presiding officer, signed the constitution, and took his seat.

Letters were received:—

From Count Cancrine, dated St. Petersburg, Nov. $\frac{13}{25}$, 1843, —Dr. Francis, dated New York, Jan. 29, 1844,—Dr. T. G. Mower, dated New York, Feb. 5, 1844,—and Dr. Locke, dated Cincinnati, Feb. 3, 1844, severally acknowledging their election as members of the Society:—

From M. Arago, dated Paris, Sept. 29, 1843, acknowledging the receipt of Transactions and Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Catalogue of Books added to the Library of the Library Company of Philadelphia, since the Large Catalogue of 1835, to January, 1844. Third Edition. 1844. 8vo.—*From the Directors of the Company.*

Insanity among the Coloured Population of the Free States. By Edward Jarvis, of Dorchester, Massachusetts. Extracted from the American Journal of the Medical Sciences, for January, 1844.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Journal des Observations Physiques, Mathématiques et Botaniques, faites par l'ordre du Roy sur les Côtes Orientales de l'Amérique Méridionale, et dans les Indes Occidentales, depuis l'année, 1707, jusques en 1712. Par le R. P. Louis Feuillée. Paris, 1714—1725. 3 Vols. 4to.

On motion of Mr. Kane, Mr. Dillingham was appointed to prepare an obituary notice of Judge Gaston, whose decease was reported to the Society at its last meeting.

Professor Frazer announced the death of Dr. Marmaduke Burrough, at Mount Holly, at the age of 46; and on motion of Mr. Lea, Dr. Morton was appointed to prepare an obituary notice of him.

Stated Meeting, March 1.

Present, twenty members.

Dr. BACHE, Vice-President, in the Chair.

Letters were received:—

From the Hon. B. F. Butler, dated New York, Feb. 22, 1844, acknowledging his election as a member of the Society:—

From the Royal Asiatic Society, dated London, Dec. 9, 1843,—the Society of Antiquaries, dated London, Jan. 28, 1844,—the Linnean Society, dated London, Dec. 21, 1843,—the Geological Society, dated London, Dec. 14, 1843, acknowledging the receipt of Proceedings of this Society,—the Royal Astronomical Society, dated London, Dec. 18, 1843, on forwarding certain monthly notices of that Society,—the Consul of the United States at London, dated London, Jan. 19, 1844, in reference to certain parcels which, at the request of the Russian Consul-General in London, he had forwarded to this Society.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society of London, containing Abstracts of Papers, and Reports of the Proceedings of the Society, from June, 1833, to June, 1836. Vol. III. London, 1836. 8vo. Vol. IV. No. 2. December 9, 1836. Vol. V. Nos. 6, 7, 8, 9, 14, 16. Vol. VI. Nos. 1 and 2.—*From the Society.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland. No. XIV. London, 1843. 8vo.—*From the Society.*

Mémoires de l'Académie Impériale des Sciences de Saint-Pétersbourg. VIme Série. Sciences Mathématiques, Physiques et Naturelles. Tome Cinquième. Première Partie: Sciences Mathématiques et Physiques. Tome Troisième, 1ère Livraison. Saint-Pétersbourg, 1842. 4to. 2de et 3ème Livraisons, 1843. Tome Septième. Seconde Partie: Sciences Naturelles. Tome Cinquième, 1ère et 2de Livraisons. Saint-Pétersbourg, 1843. 4to. Sciences Politiques, Histoire, Philologie. Tome Sixième, 1ère et 3ème Livraisons. Saint-Petersbourg, 1843. 4to.—*From the Imperial Academy.*

Mémoires Présentés à l'Académie Impériale des Sciences de Saint-Pétersbourg, par divers Savans, et lus dans ses Assemblées. Tome Quatrième, 5ème Livraison. Saint-Petersbourg, 1843. 4to.—*From the same.*

Recueil des Actes des Séances Publiques de l'Académie Impériale des Sciences de Saint-Pétersbourg, tenues le 31 Décembre, 1841, et le 30 Décembre, 1842, et de la Séance Solennelle tenue en l'hon-

neur de M. le Président de l'Académie, le 12 Janvier, 1843. Saint-Pétersbourg, 1843. 4to.—*From the same.*

Kongl. Vetenskaps-Academiens Handlingar, för år 1841. Stockholm, 1842. 8vo.—*From the Royal Swedish Academy.*

Årsberättelse om Framstegen i Kemi och Mineralogi afgifven den 31 Mars, 1841; af Jac. Berzelius, K. V. Acad. Secret. Stockholm, 1841. 8vo. The same work for the years 1842 and 1843.—*From the same.*

Årsberättelse om Zoologiens Framsteg under åren, 1840, 1842, till Kongl. Vetenskaps-Akademien afgifven af Zoologiæ Intendenterna vid Rikets Naturhistoriska Musæum. Andra Delen (Insecta, Linn.) af C. H. Boheman. Stockholm, 1843. 8vo.—*From the same.*

Berättelse om Astronomiens Framsteg för Åren, 1837—1841. Af N. H. Selander. Stockholm, 1843. 8vo.—*From the same.*

Årsberättelse om Technologiens Framsteg, till Kongl. Vetenskaps-Academien afgifven den 31 Mars, 1841; af G. E. Pasch. Stockholm, 1843. 8vo.—*From the same.*

Atti della Prima Riunione degli Scienziati Italiani tenuta in Pisa nell' Ottobre del 1839. Pisa, 1840. 4to.—*From the Italian Association, through Vincenzo Antinori, Director of the Museum of Natural History of Florence.*

Atti della Terza Riunione degli Scienziati Italiani tenuta in Firenze nel Settembre del 1841. Firenze, 1841. 4to—*From the same.*

The African Repository and Colonial Journal. Vol. XX. No. 2. February, 1844. 8vo.—*From the American Colonization Society.*

Report of a Committee of the Delaware County Institute of Science, on the Great Rain Storm and Flood which occurred in that County on the 5th of August, 1843: with a Map of the County. Read at a Special Meeting of the Institute, January 4, 1844. Chester. 8vo.—*From the Institute.*

Journal of the Franklin Institute. Vol. VII. Third Series. Feb. 1844. 8vo.—*From Dr. R. M. Patterson.*

The Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1843. 8vo.—*From the Directors.*

Report of the Pennsylvania Hospital for the Insane, for the Year 1843. By Thomas S. Kirkbride, M.D., Physician to the Institution. Philadelphia, 1844. 8vo.—*From the Managers.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker.

Published Quarterly. Vol. I. No. 3. Jan. 1844. London. 8vo.—*From the Editor.*

M'Elroy's Philadelphia Directory for 1843. 8vo.—*From Mr. Du Ponceau.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 491 & 492. 4to.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XVII. Nos. 22 to 26, inclusive. Tables des Comptes Rendus. Tome XVI. Paris, 1843. 4to.

Mr. Kane announced the death of Mr. Nicholas Biddle, a member of the Society,—who died at Andalusia, Bucks County, on the 27th of February,—and referred at some length, to the character of the deceased, and to the services which he had rendered to the literature of his country.

Mr. Smith presented, for the inspection of the members, a piece of the gun, which had recently burst on board the Princeton.

He exhibited it for the more especial purpose of showing the changes that wrought iron undergoes under particular circumstances. He presented specimens of iron which were fibrous, and which, after having been cold-swaged, became crystalline. When the iron was annealed, the fibrous arrangement again became manifest. The properties of wrought and cast iron have only recently attracted the attention of philosophers.

Mr. Smith referred to the accident on the Versailles railway, and to the report of the French *savans* on the subject. He observed that the iron on railways becomes crystalline, under the jars to which it is subjected. He stated, that various causes had been assigned to the explosion on board the Princeton; and remarked, that if the iron had been originally fibrous, it certainly is crystalline now, the crystals being readily distinguishable even by the naked eye. He remarked, farther, that the defect was supposed to be in the original formation of the piece, which had become granular, perhaps, in the forging; and it has been supposed, that the crystalline texture may have been favoured by the repeated firing of the gun. Mr. Smith thought that the accident suggested the importance of occasionally annealing pieces of ordnance, as had been found necessary in the case of railway axles, which are annealed periodically.

Stated Meeting, March 15.

Present, sixteen members.

Dr. BACHE, Vice-President, in the Chair.

Letters were received:—

From Chief Justice Taney, dated Baltimore, March 9, 1844, in acknowledgment of his election as a member of the Society:—

From the Natural History Society of Northumberland, Durham, and Newcastle upon Tyne, dated Newcastle, Dec. 29, 1842, acknowledging the receipt of the Proceedings of the Society:—

From John B. Sartori, dated Leghorn, Jan. 11, 1844, returning thanks, on the part of his Imperial and Royal Highness, the Grand Duke of Tuscany, for the Transactions of the Society, and in relation to certain other packages sent to M. Sartori's care.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, ou Figures et Descriptions de Plantes Belgiques. Par Kops et Vander Trappen. Nos. 130 to 131. Amsterdam. 4to. *From H. M. the King of the Netherlands.*

Reports of the Natural History Society of the Counties of Northumberland, Durham, and Newcastle upon Tyne. For the Years 1831, 1834, 1835, 1336, 1837, 1838, 1840, 1841. 8vo.—*From the Society.*

A Catalogue of the Generic and Sub-generic Types of the Class Aves, Birds, arranged according to the Natural System. Newcastle, 1840. 8vo.—*From the same.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Tiende Deel. 4e Stuk. Leiden, 1843. 8vo.—*From the Editors, Vander Hoeven and De Vriese.*

Erster Zusatz zu der Schrift: Ueber den Galvanismus als Chemisches Heilmittel u. s. w. Von Dr. Gustav Crusell. St. Petersburg, 1842. 8vo.—*From the Author.*

Quadro Geografico-Ornitologica ossiu Quadro Comparativo le Ornitologie di Malta, Sicilia, Roma, Toscana, Liguria, Nizza, e la

Provincia di Gard. Compilato da Antonio Sehembri. Malta, 1843. 4to.—*From the Author.*

The Medical News and Library. Vol. II. March, 1844. No. 15. 8vo.—*From Messrs. Lea & Blanchard.*

FOR THE CABINET.

A Specimen of Dodecaedral Oxide of Iron, from Berks County, Pennsylvania.—*From J. C. Trautwine.*

Thirty-three Specimens of Fossils from the Himalaya and Sevalik Hills. Collected by the Rev. James R. Campbell, Missionary of the Reformed Presbyterian Church, at Saharumpur, Upper India. *From the Rev. Theodore W. J. Wylie.*

Mr. Dillingham, pursuant to appointment, read an obituary notice of Judge Gaston.

The life of Judge Gaston, Mr. Dillingham said, should be written for the special benefit of the cause of religious toleration. He was himself a Catholic, and the champion of toleration; his ancestors were Huguenots, and had been driven from France by the revocation of the edict of Nantes. They sought refuge in Ireland, where his father was born, and where his uncle, the Rev. Hugh Gaston, was a Presbyterian clergyman, eminent for piety and learning, and the author of a religious work* of high authority. Dr. Alexander Gaston, the father, received his professional education in the medical school at Edinburgh, and was subsequently appointed a surgeon in the British navy, but early in life came to this country, and settled at Newbern, North Carolina. He was distinguished among the patriots of the revolution, was a member of the committee of safety, and served in the army,—at times in his professional capacity, and once in the command of a body of volunteers, which led to his early and tragical death. He was shot in the presence of his wife and family, under circumstances which indicate the character of the strife between the whigs and tories of the revolution. He left a widow and two children, one of them, the subject of this notice, but three years old.

Judge Gaston was born at Newbern, N. C., on the 19th of Sept. 1778. His mother was of the Roman Catholic faith. She was distinguished for prudence, intelligence, and accomplishments, and, by common consent, moulded the character of her son for that high destiny which he subsequently attained. A disposition, in childhood,

* "Gaston's Concordance."

"volatile and irritable," was so trained as to become a pattern of patience and perseverance. At the age of thirteen he was sent to the College at Georgetown, where, in the course of two years, by assiduous study, he became deeply imbued with a love for the ancient classics. Much stress is laid upon the advantages he derived from the instructions of the Rev. Thomas P. Irving, by whom he was prepared to enter the junior class at Princeton, at the age of sixteen, where he afterwards graduated with the highest honours. He studied law in his native town with Francis Xavier Martin, now a distinguished judge in Louisiana, and was admitted to practice at the age of twenty. He was elected at twenty-one to the Senate of the State, and soon became conspicuous for talents, influence, and usefulness. In 1808 he was one of the electors for President and Vice-President, and in 1813 a member of Congress, to which station he was again elected.

After the year 1817, his sphere of usefulness was limited to his own State, where, at the bar, in the Legislature, in the Convention to amend the Constitution, and upon the bench of the Supreme Court, he was always in action, always strenuous for the right, to the end of his virtuous and patriotic life.

He died at Raleigh, on the 23d of January last, in the sixty-sixth year of his age, beloved, revered, and lamented. In him, said Mr. Dillingham, there was a rare combination of great talents and great virtues. With genius, learning, and eloquence, he united sound judgment, practical good sense, and untiring industry. He was a ripe scholar, a sound lawyer, an able statesman, an accomplished gentleman, and a Christian in the best sense of the word.

A conversation took place on the subject of the recent action of the Comptrollers of the Public Schools, in regard to mounting the transit instrument at the High School, in which Mr. Walker, Professor Hart, Mr. Smith, and Dr. Hays, participated.

Special Meeting, April 2.

Present, thirty members.

Dr. PATTERSON, Vice-President, in the Chair.

The Chairman, in the absence of the senior Vice-President from indisposition, announced that the meeting had been called on the occasion of the lamented death of the venerable President of the Society, who died on the 1st instant, at the age of 84. He gave a brief history of Mr. Du Ponceau's long and useful career, and of the services which he had rendered to the Society, to the objects for which the Society was instituted, and to the country.

Whereupon the following resolutions were presented by Dr. Bache, Vice-President, and unanimously adopted:—

Resolved, That the members of the Society will assemble at the Hall on Thursday afternoon, at 3 o'clock, in order to attend the funeral of their late President.

Resolved, That the President's chair be shrouded in black during six months.

Resolved, That a public discourse in commemoration of Mr. Du Ponceau, be delivered by a member to be appointed for that purpose.

Resolved, That a letter be addressed to the family of Mr. Du Ponceau, expressive of the deep sympathy of the Society in the bereavement which they have sustained, and that it be accompanied by a copy of these resolutions.

On motion of Dr. Bache, it was resolved to proceed forthwith to the nomination of an orator, under the third resolution: whereupon Dr. Dunglison was nominated by Dr. Bache, and on motion of Mr. C. C. Biddle it was resolved, that the nomination be now closed, and that Dr. Dunglison be appointed to deliver the commemorative discourse.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. APRIL—JUNE, 1844. No. 30.

Stated Meeting, April, 5.

Present twenty-two members.

Dr. PATTERSON, Vice-President, in the Chair.

Mr. Hubbard of New Haven, a visiter, was introduced by Mr. Walker.

Letters were announced and read:—

1. From Major Graham, dated N. York, March 28, 1844, in relation to copies, presented by him to the Society, of a profile or vertical section, with the spirit level, of the country traversed by the due north line from the monument at the source of the river St. Croix to the river St. John; derived from surveys executed under his direction in the years 1840 and 1841, while serving as United States' Commissioner for the survey of the territory on the N. E. frontier of the United States, then in dispute with the government of Great Britain.

In presenting this document, Major Graham called the attention of the Society to the strong contrast which appeared on a comparison between the aspect of the country traversed by this due north line, as there developed, and that exhibited by the profile of Col. Bouchette, the British surveyor, under the fifth article of the treaty of Ghent, derived from his surveys of that line, and his barometric measurements upon it, in the years 1817 and 1818.

The direction of the meridian line, whose profile or vertical line was now offered to the notice of the Society, was obtained from nu-

merous astronomical observations, fully verified with a transit instrument, having a telescope of forty-three inches focal length. The meridian, thus traced, does not meet with any high land or elevation whatever in passing Mars Hill; but, on the contrary, it passes the base of that eminence considerably to the eastward, and at a *depression* no where less than twelve feet below the level of the base of the monument, which was erected to mark the source of the river St. Croix, by the commissioners appointed under the fifth article of the treaty of 1794, to ascertain and mark the true St. Croix, &c. The base of this monument is surrounded, unless at seasons of extreme drought, by the water constituting the extreme source of that river.

The profile of Col. Bouchette shows an elevation of the surface of the ground upon the meridian line, as it passes Mars Hill, of five hundred and sixty feet above the level of the monument at the source of the St. Croix; whereas by the survey of Major Graham, the true meridian from the monument passes the hill at an actual depression of twelve feet below the level of the base of the monument. The direction of the true meridian, as shown upon the profile presented by Major Graham, was derived from numerous astronomical observations made with the above mentioned transit instrument; and the elevations exhibited upon it were derived from a line traced with two spirit levels, the one following as a check upon the other, from the level of mean tide at Calais, Me. to the monument at the source of the St. Croix, and thence along the meridian line to its intersection with the river St. John.

2. From Sir Wm. Jardine, dated Jardine Hall, by Lockerbie, Feb. 15, 1844, acknowledging the receipt of Transactions of the Society, and stating that he had forwarded to the Society certain numbers of his Annals of Natural History; transmitting a prospectus of the Ray Club, and asking if it might not hope for support from this country.

The Ray Club was commenced by Sir William, and other friends, to advance the facility with which works on Natural History, not always accessible, may be procured. Names and addresses to be forwarded to Dr. George Johnston, Berwick-upon-Tweed, who has consented to act as Secretary until the feasibility of the project has been ascertained, and a council appointed.

Every subscriber of one guinea annually, payable in advance, to be members of the club.

The following donations were announced:—

FOR THE LIBRARY.

Observations on Days of Unusual Magnetic Disturbance, made at the British Colonial Magnetic Observatories, under the Departments of the Ordnance and Admiralty. Printed by the British Government under the superintendence of Lieut. Col. Edward Sabine, of the Royal Artillery. Part I. 1840, 1841. London, 1843. 4to.—*From the British Government.*

Transactions of the Society instituted at London for the Encouragement of Arts, Manufactures and Commerce; with the Premiums offered for the Sessions 1843–44, and 1844–45. Vol. LIV. London, 1843. 8vo.—*From the Society.*

Boletin Enciclopedico de la Sociedad Economica de Amigos del Pais. Concluding Number of Vol. II. Valencia, 1843. 8vo.—*From the Society.*

An Account of the Receipts and Expenditures of the United States, for the Year 1842. Prepared in the Office of the Register of the Treasury. Washington, 1843. 8vo.—*From the Treasury Department.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. Jan. Feb. 1844. No. 1.—*From the Academy.*

Journal of the Franklin Institute. Third Series. Vol. VII. March, 1844. No. 3.—*From Dr. R. M. Patterson.*

The African Repository and Colonial Journal. Vol. XX. No. 3. March, 1844. 8vo.—*From the Colonization Society.*

The American Journal of Science and Arts. Conducted by Professor Silliman and R. Silliman, Jr. Vol. XLVI. No. 2. April, 1844. 8vo.—*From the Editors.*

A Brief Account of the Society of the Friendly Sons of St. Patrick, with Biographical Notices of some of the Members, and Extracts from the Minutes. Philadelphia, 1844. 8vo.—*From the Hibernian Society.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M. D. No. XIV. New Series, April, 1844. 8vo.—*From the Editor.*

The Medical News and Library. Vol. II. April, 1844. No. 16. 8vo.—*From Lea & Blanchard.*

Document of Congress, 1st Session 28th Congress, House of Representatives. No. 169.—*From Major J. D. Graham.*

Profile with the Spirit Level, of the due North line from the Monu-

ment at the Source of the River St. Croix to the River St. John. Surveyed in 1840 and 1841, under the direction of Major J. D. Graham, U. S. Top. Engineers, &c. &c. Two Copies.—*From the same.*

Second Report of the Manufacture of Iron; addressed to the Governor of Maryland. By J. H. Alexander, late Topographical Engineer of the State. Printed by order of the Senate. Annapolis, 1844. 8vo.—*From the Author.*

Miscellanies. By Stephen Collins, M.D. Philadelphia, 1842. 12mo. *From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 493 and 494. Altona, January 6 and 13, 1844. 4to.

Mr. Kane announced the death of Professor Sanderson, a member of the Society, who died on the fifth of April, at the age of 58; and, on motion, Professor Hart was appointed to deliver an obituary notice of the deceased.

Professor Hart stated, for the information of the Society, that a Committee of the Controllers of the High School had resolved to mount the transit instrument in the Observatory of that Institution.

Dr. Hays, on the part of the Committee of Publication, presented the first part of the ninth volume of the Transactions of the Society, and drew attention to its important contents and improved appearance.

Professor Henry made a verbal communication relative to the cohesion of liquids.

He stated that very erroneous ideas are given as to the constitution of matter in the ordinary books on Natural Philosophy. The passage of a body from a solid to a liquid state is generally attributed to the neutralization of the attraction of cohesion by the repulsion of the increased quantity of heat; the liquid being supposed to retain a small portion of its original attraction, which is shown by the force necessary to separate a surface of water from water in the well known experiment of a plate suspended from a scale beam over a vessel of the liquid. It is, however, more in accordance with all the phenomena of cohesion to suppose, instead of the attraction of the liquid being neutralized by the heat, that the effect of this agent is merely to neu-

tralize the polarity of the molecules so as to give them perfect freedom of motion around every imaginable axis. The small amount of cohesion (53 grains to the square inch), exhibited in the foregoing experiment, is due, according to the theory of capillarity of Young and Poisson, to the tension of the exterior film of the surface of water drawn up by the elevation of the plate. This film gives way first, and the strain is thrown on an inner film, which, in turn, is ruptured; and so on until the plate is entirely separated; the whole effect being similar to that of tearing the water apart atom by atom.

Reflecting on this subject, Professor H. had thought that a more correct idea of the magnitude of the molecular attraction might be obtained by studying the tenacity of a more viscid liquid than water. For this purpose he had recourse to soap water, and attempted to measure the tenacity of this liquid by means of weighing the quantity of water which adhered to a bubble of this substance just before it burst, and by determining the thickness of the film from an observation of the colour it exhibited in comparison with Newton's scale of thin plates. Although experiments of this kind could only furnish approximate results, yet they showed that the molecular attraction of water for water, instead of being only about 53 grains to the square inch, is really several hundred pounds, and is probably equal to that of the attraction of ice for ice. The effect of dissolving the soap in the water is not, as might at first appear, to increase the molecular attraction, but to diminish the mobility of the molecules, and thus to render the liquid more viscid.

The communication of Professor Henry gave occasion to further observations from him in reply to remarks made by Dr. Patterson.

Dr. Dunglison directed attention to the establishment of the Sydenham Society of London, instituted with objects similar to those of the Ray Club,—to facilitate the publication of medical works and the diffusion of medical literature; and detailed the plan which the Society intends to pursue in order to carry its objects into effect.

These objects will consist of a succession of publications, embracing, among others, 1. Reprints of standard English works, which are rare and expensive. 2. Miscellaneous selections from the ancient and from the earlier modern authors, reprinted or translated. 3. Digests of the works of old and voluminous authors, British and Fo-

reign, with occasional biographical and bibliographical notices. 4. Translations of the Greek and Latin medical authors, and of works in the Arabic and other Eastern tongues, accompanied, when it is thought desirable, by the original text. 5. Translations of recent foreign works of merit and original works of merit, which might prove valuable as books of reference, but which would not otherwise be published upon the slender chance of their meeting with a remunerating sale—such as bibliographies, alphabetical and digested indexes, and voluminous periodical publications, &c.

The subscription is one guinea, to be paid in advance, on the 25th day of March annually, for which the subscriber will be entitled to a copy of every work published by the Society for the year for which he subscribes.

Dr. Dunglison stated, that the Society was already very flourishing, and consisted of 1700 members. The officers are amongst the most eminent members of the medical profession in England. At the request of the Council he had consented to act as Honorary Local Secretary for Philadelphia; and to receive subscriptions. Two works have been already issued by the Society.

Mr. Walker communicated the elliptic elements of the Comet discovered in Orion on the 23d of November last by Mr. Fay, and re-discovered in this country by Mr. Joseph S. Hubbard, of New Haven, on the 27th of December.

These elements are derived from the Paris observation of Nov. 25th, the mean of the Hamburg and Berlin observations of December 17th, and the Philadelphia observations of Jan. 24th. They represent the comet's path in the heavens within about one minute of space. They had been computed by Prof. Kendall with the assistance of Messrs. Downes and Hubbard, and are as follows, the longitudes being referred to the mean equinox of December 17th.

Perihelion passage, October	26° 074955′ m. t. Greenwich.
Longitude of Perihelion	54° 48′ 58.″7
Do. Ascending Node	208 6 36. 3
Inclination	11 5 50. 0
Perihelion distance	1,714396
Eccentricity	0.5247541
Angle of do.	31° 30′ 6.″1

Mean Distance	3.607384
Mean daily motion direct	517.″8667

Mr. W. remarked that their general resemblance to those of Dr. Goldschmidt, seemed conclusive as to the short period of this heavenly body, which though cometary in its appearance in the telescope, resembled the asteroids in the shape of its orbit.

In reply to a question from Dr. Patterson—whether there was reason to believe, that the Comet had ever been seen before? Mr. Walker stated, that he had not yet the necessary elements for a decision.

Stated Meeting, April 19.

Present, twenty-nine members.

Dr. Bache, Vice-President, in the Chair.

Letters were announced and read:—

1. From the Secretary of the Commonwealth of Massachusetts, dated Boston, Nov. 25th, 1844, offering to present to the Society certain works, the results of scientific surveys made under the direction of that Commonwealth:—

2. From the Royal Geographical Society, dated London, Dec. 14, 1843, acknowledging the receipt of the Society's Proceedings:—

3. From the American Academy of Arts and Sciences at Boston, dated April 10th, 1844, enclosing the following resolutions on the occasion of the death of the President of this Society:—

Resolved, That the American Academy of Arts and Sciences has received with pain the intelligence of the death of the learned President of the American Philosophical Society of Philadelphia, Peter S. Du Ponceau, Esq. LL.D., and deeply sympathizes with that Society on the loss of that eminent man, whose talents and patriotic services have shed lustre upon our country, and conferred honour upon the distinguished body over which he was selected to preside, as a wor-

thy successor to the illustrious individuals who have, for a long series of years, been placed at its head.

Resolved, That the profound researches of Mr. Du Ponceau, in the sciences of jurisprudence and general philology, and especially on the aboriginal languages of America, of whose remarkable structure and peculiar characteristics he was the first to communicate to the learned in Europe and America just and philosophical views, and by their application to general philology, to extend the boundaries of that science, are entitled to the gratitude of the jurists and scholars of our country, and are duly appreciated and recognised by this Academy, with which he has, for many years, been associated as one of its honorary members.

4. From the Corresponding Secretary of the National Institute of Washington, dated Washington, April 6, 1844, in relation to the same subject:—

5. From the Librarian to the Library of Congress, dated Washington, April 11, 1844, acknowledging the receipt of Transactions of this Society:—

6. From Charles V. Walker, Esq., dated London, March 1st, 1844, in relation to Proceedings of the Electrical Society forwarded to this Society, &c. &c.:—and

From Dr. Dunglison, as one of the executors of the late Mr. Du Ponceau, dated Philadelphia, April 10, 1844, enclosing a copy of that part of the will of the late President of the Society which relates to this Society; and stating that the executors would carry into effect the object of the bequest at the earliest possible period.

The following is a copy of the bequest:—

"I give and bequeath to the American Philosophical Society, held at Philadelphia for Promoting Useful Knowledge, all my books treating of philological subjects, that is to say, of languages in general, including hieroglyphics, alphabets, specimens of languages and works treating of the various systems of writing, excepting such Grammars and Dictionaries, English, French and Italian, which my granddaughter shall think proper to take for her own use. Also, all my pamphlets in any languages, bound or unbound, separately or together, whether relating to politics or literature, or other subjects, excepting such as my said granddaughter shall think proper to reserve for her own use. Also, my works of Locke, Condillac, Dumarsais, the two Humboldt, Dugald Stewart, and Thomas Reid, in their original

languages. Also, the Journal Asiatique, with its continuation, in hopes that the subscription will be continued. Also, the works of Jomard, Prichard, Klaproth and Remusat. Also, Micali's History of the ancient Italian Nations, in Italian, three volumes 8vo., with the plates belonging to it. Also, the Geography of Malte Brun, as those books shall be found in my library. * * * I except from the books given to the Philosophical Society those of which they are already possessed, as will appear from their catalogues. These duplicates I give to my friend John Pickering, above named. As to bound pamphlets, if among them there should be any which they already have, they may still keep the bound volumes for the sake of those which they have not got, as it would not do to separate them. * * * I give and bequeath, in addition to the other bequests to the American Philosophical Society, held at Philadelphia for Promoting Useful Knowledge, my Moniteur Universel, or Gazette Nationale, in twenty-one volumes folio, being the History of the French Revolution and of Europe, from 1789 to 1800, with an additional odd volume of a subsequent date, and the six volumes of Indexes to the same, entitled Tables Chronologiques and Tables Alphabétiques, in quarto."

The will bears date Nov. 11, 1839.

The following donations were announced:—

FOR THE LIBRARY.

The Journal of the Royal Geographical Society of London. Vol. XIII. Part I. London, 1843. 8vo.—*From the Society.*

Proceedings of the London Electrical Society. Session 1842–43. Part V. 8vo.—*From the Society.*

Annales des Mines. Rédigés per les Ingenieurs des Mines. Quatrième Série. Tome IV. IVe livraison de 1843. Juillet—Août. 8vo.—*From the Engineers of Mines.*

Journal of the Franklin Institute. Third Series. Vol. VII. April, 1844. No. 4. 8vo.—*From Dr. Patterson.*

Report of the Select Committee appointed upon the following Resolution offered by Mr. Pratt on the 29th of January last, viz.—"Resolved, that a select committee of five members of this house be appointed to inquire into the expediency of establishing a Bureau of Statistics and Commerce in connexion with the Secretary of the Treasury." 28th Congress, 1st Session, House of Representatives. No. 301.—*From the Hon. Mr. Pratt.*

Observations of the Magnetic Dip in the United States. Fourth Se-

ries. By Elias Loomis. Extracted from Vol. VIII. New Series, of the Transactions A. P. S.—*From the Author.*

The British Almanac of the Society for the Diffusion of Useful Knowledge. For the Year 1843. London. 12mo.—*From Petty Vaughan, Esq.*

A History of British Ferns. By Edward Newman, F.L.S., B.S., &c. Parts 1 and 2. Second Edition. London, 1844. 8vo.—*From the Author.*

The Zoologist: an Illustrated Magazine of Natural History. Nos. XIII. XIV. XV. Jan. to March, 1844. 8vo.—*From Edward Newman, Esq., Editor.*

An Essay on the Laws of Trade, in Reference to the Works of Internal Improvement in the United States. By Charles Ellet, Jr. Richmond, 1839. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Troisième Série. Tome IX. Novembre, Décembre, 1843. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences; par MM. les Secrétaires Perpétuels. Tome XVIII. Nos. 1 to 4, inclusive. 4to.

Astronomische Nachrichten. Nos. 495, 496. Altona, Feb. 17 and 18, 1844. 4to.

An obituary notice of Professor John Sanderson was read by Professor Hart, pursuant to appointment.

Mr. Sanderson was born on the banks of the Conedogwinit, near the village of Carlisle, in Cumberland County, about the year 1786. His grandfather, Alexander Sanderson, emigrated from Carlisle, Cumberland County, England. He and his companions were the first settlers in that part of Pennsylvania, and they named the county and the town after their birth-place. Professor Sanderson's father, in 1798, sold his share of the paternal estate, and purchased a plantation on the banks of the Juniata, opposite Mifflintown, where Professor Sanderson received the rudiments of his education. At an early age he evinced such a disposition for study, and so great a dislike for farming, that his father determined to prepare him for a profession. At the age of 20, in 1806, he entered the office of Wm. More Smith, Esq., of Philadelphia, to study the law; but at the expiration of two years he abandoned the study, and soon after accepted

a situation at Clermont Seminary, where he subsequently became a partner of M. Carré, whose daughter he had married; and for many years the establishment was conducted in their joint names. During this period he wrote for the periodicals, especially the Port Folio and the Aurora. In 1820 he edited the Biography of the Signers of the Declaration of Independence, in which he wrote an historical sketch of this country to the period of the Revolution, with the lives of Hancock, Franklin, Wythe, and others. He wrote, also, various pamphlets on literary subjects, and whenever opportunity offered, vindicated the study of the Greek and Latin languages when endeavours were made to exclude them from colleges. About the year 1833 he retired from the occupation in which, at the expense of health, he had accumulated a moderate independence, and settled, with his family, in Pottsville, and soon afterwards travelled abroad and spent some time in Paris: during this visit he wrote his "American in Paris," and commenced the "American in London," the first portion of which, and the only part that was published, appeared in the Knickerbocker.

On the reorganization of the High School of Philadelphia in 1840, he was made Professor of Ancient Languages, which situation he held till his death. A portion of his duties at the High School led him to direct his attention particularly to the study of his native tongue, and he had in course of preparation a work on the Etymology and Structure of the English Language.

"That," Professor Hart observes, "which chiefly distinguished him as a writer, was his power of observation and delineation. He had, in consequence, a remarkable talent for that species of writing which consists in giving vivid sketches of passing characters and events. Our popular literature contains few more readable books than his 'American in Paris.' His mind was a perennial fountain of wit, sparkling, buoyant, and playful—of that laughter-loving kind which never failed to produce hilarity, as it was never known to provoke resentment. He was a man eminently devoid of guile or malice. Simple in manners and address, and almost child-like in his feelings, he won from those who knew him, and particularly from his pupils, something higher and holier even than respect. He was *beloved*. He had a native kindliness of disposition which always finds its way to the heart."

Professor Locke read a communication on Terrestrial Magnetism, the result of several years' observation in various parts

of the United States, which was referred to a Committee, consisting of Professor Frazer, Mr. M'Euen and Professor Bache.

He gave a brief history of the circumstances which induced him to undertake these researches, in which he made a grateful acknowledgment for the kind and able instruction, especially in the practical manipulations, received from Professor Bache of this Society, while in London and Paris. He read a part of the correspondence between himself and Col. Sabine on the subject of the point of maximum intensity at or near to Lake Superior, and suggested, as the probable result of his researches and of those of Lieut. Lefroy, briefly alluded to by Col. Sabine, that the region of maximum intensity is either at Kewenon peninsula, south side of Lake Superior, or along a line extending thence to Rainy Lake—the last opinion having been expressed by Col. Sabine in his correspondence. To determine this point more precisely, Prof. Locke suggested that observations should be multiplied in various parts of the region of the lake. The observations were prefaced by a popular explanation of what is meant by the four elements of terrestrial magnetism, declination ("variation") dip or inclination, horizontal intensity of magnetic force, and total intensity of the same force. These explanations were followed by the observations of six successive years, commencing in 1838, and extending more or less over the region included between the middle of Kentucky on the south, and the north side of Lake Superior on the north; and between Cambridge, Mass., on the east, to the middle of Iowa on the west. His observations had been accompanied throughout by remarks on the geology at each station, and he expressed the opinion that those observations justified the conclusion, that the general character of the rocks, especially as regards the distinction between the aqueous and the igneous formations, could be ascertained by the elements, as indicated by lines of observations extended along any given region. He exhibited a chart illustrative of this subject, on which the two quantities of dip and intensity were represented by curves passing through ordinates standing on horizontal distances, generally along lines of latitude. These curves, along regions of aqueous rocks, such as those along the Mississippi, were remarkably uniform, while those over igneous rocks were extremely irregular and undulating, sometimes ascending and descending with a needle-like sharpness. He remarked, that if these distinctive characters obtain so generally as to constitute a *law*, the

magnetical instruments will form a kind of "*mineral* or *divining rod*" to the geologist.

There was exhibited, also, a chart of the United States, showing, chiefly, the isodynamic lines consistent with the observations. These lines form ovals around Lake Superior as an axis, the longer or pointed ends pointing towards New York, and in the opposite direction. The outer oval descending along the Hudson river, passing through the city of New York, along the coast, to near Baltimore, and, turning westward, traverses Maryland, Virginia, and Kentucky, and crosses the Mississippi into Missouri about thirty miles below St. Louis.

The force along this line is 994, that at Cincinnati, in Ohio, being 1000; and an oval is delineated at every increase of 10, until, at the axis at Lake Superior, it rises to from 1054 to 1060. But, Professor Locke stated, more observations are needed to fix more precisely those lines at remote points, and he expressed a desire, that the observations of Major Graham, Prof. Bache, and Prof. Loomis, together with his own, might be united in a suitable chart, such as might be produced by a convention of observers. Two other charts, explained in the communication, were also exhibited; the one a copy of a part of Col. Sabine's north polar chart, with additions, and with a delineation of the relative positions of the astronomical poles, the pole of dip and convergence discovered by Ross, and the pole of intensity at Lake Superior; and the other a particular delineation of Copper Harbour and of Porter's Island, where, in Prof. L.'s line of observations, he found the greatest intensity of force.

Dr. Dunglison read the following supplementary remarks made by the late President to his last will and testament, in relation to this Society, as well as to others.

"Having thus disposed of my worldly property, I take the liberty to recommend to my brethren of the bar the Law Academy of Philadelphia, that they may take it under their special protection, so as to make it as useful as possible to the progress of our noble science. A law professorship has long been wanted in this city: several of the states have the advantage of us in this respect. I recommend this important subject to the consideration of the friends of the legal science, and who are desirous of making it redound more and more to the honour of Pennsylvania.

The Historical Society of Pennsylvania is in danger of perishing

for want of support. While almost every other state has an historical society, shall it be said that Pennsylvania wants one? Under the auspices of its illustrious founder, William Rawle, it has produced interesting and valuable memoirs; the honour of the state requires that the work should be continued. I recommend to them to increase the number of their members, and, perhaps, to raise the annual subscription to five dollars. I would also recommend to them to apply for aid to the Legislature: no one would be better able than a committee from their body to continue the publication of our ancient records so honourably begun, and which appears to be suspended. Science and literature are the glory of a state; canals and rail roads are perishable. The noble aqueducts, temples, roads, of the Greeks and Romans, have perished, but their literary fame will last forever. If England were sunken into the ocean, her fame would be perpetuated by the works of her admirable historians, philosophers, and poets. Let those, whose minds are impressed with these feelings, exert themselves and act.

I hope the annual celebration of the landing of the great William Penn will not be discontinued, and that the Society will revive under better auspices than have for some time attended it. Might it not be remodeled and united to the Historical Society?

The American Philosophical Society have only to pursue their present honourable course.

The above objects being very near my heart, I have ventured to give vent to my feelings upon them. Perhaps it is out of place, but my heart is full, and I could not help it."

The following gentlemen were elected members of the Society:—

Samuel S. Haldeman, of Lancaster County, Pa.

George W. Norris, M.D., of Philadelphia.

Joseph Carson, M.D., of Philadelphia.

Stated Meeting, May 3.

Present, twenty-one members.

Dr. CHAPMAN, Vice-President, in the Chair.

Drs. Carson and Norris, newly elected members, were introduced to the presiding officer, and, having signed the constitution, took their seats.

Letters were announced and read:—

From Count Jacob Grâberg da Hemso, dated Florence, Jan. 15, 1844, acknowledging, as Chamberlain and Chief Librarian of his Imperial and Royal Highness, the Grand Duke of Tuscany, the election of his Imperial and Royal Highness as a member of this Society, and the thanks of his Imperial and Royal Highness for the donation of eight volumes of the Transactions of the Society:—

From Mr. Haldeman, dated Chicquesalunga, Pa., April 22d, 1844, acknowledging his election as a member of the Society:—

From the Botanical Society of London, dated March 1, 1844, returning thanks for Proceedings of this Society:—and,

From Professor Bache, dated Washington, April 25, 1844, on transmitting a letter from Mr. Rümker, of Hamburg, relating to computations of the elements of the comet discovered by Mr. Mauvais.

Elements of Mauvais' Comet.

T = 1843, (May) 6.0232020 (Mean time, Greenwich).
Log. q = 0.2083948
π = 281 27 47.58
Ω = 157 14 51.45
ι = 52 44 0.98
} From the mean equinox of July 3d, 1843.
Motion direct.

Co-ordinates referred to the Ecliptic and the Mean Equinox of July 3d, 1843.

$x = r$ [9.9783885] sin [v + 19 58 0.36]
$y = r$ [9.8320335] sin [v + 269 30 33.0]
$z = r$ [9.9008179] sin [v + 124 12 56.13]
The quantities between the brackets are logarithms.

The following times are referred to the meridian of the place of observation annexed. The longitudes and latitudes are computed directly from the observations, and are referred to the apparent equinox of the day of observation. The times are not freed from aberration, but the longitudes and latitudes are corrected for parallax. Whence the following comparison with the elements.

Date.	Time of Observation.	Longitude = l.	Reck—Obs. Δl.	Latitude = b.	Δb	Place of Observation.
1843.	^{h}	° ′ ″	″	° ′ ″	″	
May 3	15 10 54.0	341 29 5.1	— 0.1	+ 40 4 5.6	— 0.3	Paris.
4	13 30 45.0	342 2 31.9	— 7.5	+ 39 49 58.1	+ 0.0	Paris.
6	13 12 47.0	343 11 54.2	— 3.3	+ 39 19 26.7	+ 0.9	Paris.
8	13 25 3.0	344 19 45.7	— 7.0	+ 38 48 3.8	+ 4.9	Paris.
19	12 20 46.0	349 47 25.0	+ 2.1	+ 35 50 9.5	+ 1.3	Konigsberg.
20	13 6 32.0	350 15 4.7	— 2.5	+ 35 32 40.2	— 0.3	Konigsberg.
21	12 27 8.0	350 40 26.1	+ 4.2	+ 35 16 6.3	— 3.5	Konigsberg.
21	12 35 3.0	350 40 56.8	+ 12.6	+ 35 15 44.2	— 7.3	Berlin.
24	11 57 47.0	351 55 10.7	+ 7.9	+ 34 24 32.3	— 4.0	Konigsberg.
24	12 49 10.1	351 56 57.1	— 3.8	+ 34 23 17.6	+ 2.3	Hamburg.
24	13 29 37.0	351 57 58.3	+ 6.6	+ 34 22 30.8	— 2.0	Paris.
27	12 53 8.8	353 7 10.7	— 1.6	+ 33 30 18.0	+ 6.1	Padua.
28	12 12 17.0	353 28 17.3	+ 3.5	+ 33 13 32.7	— 6.4	Konigsberg.
28	13 10 1.9	353 29 42.4	+ 3.5	+ 33 12 30.6	— 13.4	Padua.
29	12 30 54.0	353 50 22.8	+ 5.0	+ 32 55 17.4	— 6.5	Konigsberg.
29	12 44 21.3	353 51 8.2	+ 9.5	+ 32 54 17.3	+ 11.6	Hamburg.
30	12 9 11.8	354 12 2.6	+ 0.1	+ 32 36 43.1	+ 3.2	Hamburg.
31	13 2 31.8	354 33 21.9	+ 3.9	+ 32 17 51.1	+ 2.9	Padua.
June 2	12 24 14.0	355 12 8.3	+ 6.5	+ 31 41 55.7	— 4.0	Konigsberg.
3	12 34 6.0	355 31 19.8	+ 6.1	+ 31 23 5.0	— 9.6	Konigsberg.
4	12 35 2.2	355 50 26.1	+ 9.1	+ 31 3 37.9	+ 3.8	Hamburg.
4	12 48 5.5	355 50 42.1	+ 12.6	+ 31 3 7.3	+ 11.1	Bonn.
4	12 50 8.4	355 50 37.5	+ 18.7	+ 31 3 13.2	+ 3.6	Bonn.
4	13 39 20.0	355 51 48.2	+ 0.0	+ 31 2 41.1	— 18.1	Paris.
5	12 19 52.3	356 8 33.1	+ 0.5	+ 30 44 47.2	— 6.1	Bonn.
5	12 45 0.5	356 8 42.2	+ 9.3	+ 30 44 35.1	— 9.9	Bonn.
5	12 37 21.0	356 8 56.9	+ 3.8	+ 30 44 22.3	— 10.3	Paris.
6	12 30 31.4	356 26 6.0	— 5.2	+ 30 25 37.1	— 4.1	Hamburg.
11	12 30 34.0	357 44 28.5	+ 15.9	+ 28 48 7.2	— 8.7	Konigsberg.
15	12 13 8.9	358 38 25.7	+ 4.6	+ 27 26 0.5	— 13.9	Bonn.
15	12 34 34.2	358 38 42.3	— 1.2	+ 27 25 48.9	— 18.5	Bonn.
16	11 14 15.4	358 49 47.3	+ 11.8	+ 27 5 46.5	— 2.1	Bonn.
16	12 19 24.0	358 49 55.1	+ 9.7	+ 27 5 40.2	— 6.0	Konigsberg.
17	11 11 22.5	359 1 9.7	+ 13.1	+ 26 44 46.8	— 5.6	Bonn.
17	11 54 11.8	359 1 19.8	+ 22.8	+ 26 44 16.1	— 12.8	Bonn.
17	12 43 32.0	359 1 39.3	+ 1.8	+ 26 44 7.4	— 11.2	Konigsberg.
18	12 12 57.0	359 12 16.8	+ 0.5	+ 26 23 19.8	— 4.1	Konigsberg.
20	11 29 7.4	359 32 12.5	+ 22.8	+ 25 40 22.0	— 29.8	Bonn.
20	12 8 29.3	359 32 17.0	+ 17.4	+ 25 39 27.7	— 11.4	Bonn.
20	12 11 51.1	359 32 43.0	— 11.8	+ 25 39 45.9	— 22.2	Hamburg.
21	12 8 6.0	359 41 22.3	— 2.0	+ 25 18 22.1	— 14.0	Konigsberg.
23	12 2 49.7	359 58 14.4	— 14.6	+ 24 33 19.2	— 22.4	Hamburg.
25	11 48 28.6	0 11 54.4	+ 7.6	+ 23 47 44.8	— 21.0	Bonn.
25	12 41 46.1	0 12 11.4	+ 4.7	+ 23 46 38.1	— 5.6	Bonn.
26	12 40 57.1	0 18 16.4	+ 2.5	+ 23 23 45.6	— 12.4	Hamburg.
30	12 8 3.0	0 36 21.0	+ 7.9	+ 21 49 16.8	— 28.6	Padua.
July 1	11 59 51.0	0 39 20.3	+ 5.7	+ 21 25 11.6	— 12.7	Konigsberg.
5	12 11 24.4	0 45 17.8	+ 0.1	+ 19 42 49.9	— 0.3	Hamburg.

Date.	Time of Observation.	Longitude = l.	Reck—Obs. Δl.	Latitude = b.	Δb	Place of Observation.
1843.	h	° ′ ″	″	° ′ ″	″	
July 7	13 18 53.0	0 44 19.3	— 2.0	+18 49 6.6	— 1.3	Hamburg.
9	12 15 0.7	0 40 55.6	— 7.9	+17 56 49.1	—20.8	Hamburg.
11	12 27 42.9	0 34 34.3	+10.3	+17 0 56.1	— 3.9	Bonn.
19	12 4 48.2	359 43 21.5	+11.1	+13 7 11.7	+ 5.6	Hamburg.
20	12 0 22.7	359 34 3.3	+ 2.2	+12 36 32.6	—14.6	Bonn.
24	10 54 15.0	358 50 37.1	—18.0	+10 31 20.1	—15.6	Bonn.
24	11 33 6.9	358 49 41.6	+31.3	+10 29 59.4	+14.4	Bonn.
26	11 4 15.7	358 24 8.0	+ 0.1	+ 9 25 52.3	—16.8	Bonn.
26	11 37 1.4	358 23 37.6	+27.0	+ 9 24 48.9	+ 3.3	Bonn.
26	11 56 35.5	358 23 44.4	+ 0.4	+ 9 24 41.5	— 2.3	Hamburg.
28	12 24 44.4	357 54 47.5	— 4.0	+ 8 17 34.4	— 2.8	Hamburg.
30	11 32 52.7	357 24 8.5	— 6.9	+ 7 11 13.7	— 3.3	Hamburg.
Aug. 1	12 54 42.1	356 49 12.4	+ 1.2	+ 6 0 36.3	—12.9	Bonn.
1	13 12 27.9	356 49 10.5	— 9.8	+ 6 0 7.1	— 9.3	Bonn.
3	10 54 13.9	356 14 27.7	+13.5	+ 4 54 0.1	— 6.5	Bonn.
3	11 45 19.3	356 14 15.1	— 4.7	+ 4 52 53.4	+ 2.5	Hamburg.
4	12 30 1.8	355 54 39.4	+ 4.0	+ 4 16 57.0	— 4.8	Hamburg.
6	12 29 55.8	355 15 9.9	+11.9	+ 3 6 37.4	— 6.7	Hamburg.
7	13 6 1.3	354 54 32.6	+ 0.6	+ 2 30 18.4	— 1.9	Hamburg.
17	9 40 52.7	351 9 37.6	— 4.8	— 3 18 15.6	+ 0.5	Bonn.
19	10 11 45.0	350 19 33.1	— 2.6	— 4 28 6.6	— 1.3	Bonn.
19	11 23 4.1	350 18 19.7	+ 7.7	— 4 29 34.6	+ 2.3	Hamburg.
25	11 32 15.2	347 45 16.2	+ 7.7	— 7 50 21.6	+25.5	Bonn.
25	13 15 20.5	347 43 51.4	— 4.6	— 7 51 59.3	+ 1.8	Hamburg.
26	12 52 48.1	347 18 22.9	+ 4.8	— 8 23 32.4	+ 9.3	Hamburg.
28	10 43 53.6	346 29 12.3	— 2.5	— 9 23 17.4	— 2.5	Bonn.
28	11 34 41.6	346 28 40.0	—12.2	— 9 24 11.2	+ 0.8	Hamburg.
30	14 7 24.4	345 34 37.5	+ 0.6	—10 27 59.0	+ 8.8	Hamburg.
31	10 38 19.1	345 12 32.5	+11.5	—10 53 22.3	+ 8.1	Bonn.
31	11 54 46.3	345 11 44.5	— 9.1	—10 54 38.0	+ 4.8	Hamburg.
Sept. 2	10 57 39.7	344 22 17.9	— 0.3	—11 50 41.4	+ 0.5	Hamburg.
2	13 54 15.6	344 19 16.3	— 2.1	—11 54 19.5	+12.2	Hamburg.

W. C. GÖTZE.

The following donations were announced:—

FOR THE LIBRARY.

Books bequeathed to the Society by its late President, Peter S. Du Ponceau, LL.D.

Gazette Nationale ou le Moniteur Universel. Commencing on Thursday, the 24th November, 1789, and ending on Monday, the 22d September, 1800. Paris. 21 Vols. Folio.

The same Work, from the 23d September, 1800, to the 30th December. 1 Vol. Folio.

The same, from the 21st January to the 19th July, 1805. 1 Vol. Folio.

The same, from the 22d March to the 22d June, 1809. 1 Vol. Folio.

The same, from the 19th September to the 19th December, 1809. 1 Vol. Folio.

Révolution Française. Table Alphabétique du Moniteur, de 1787 jusqu'à l'an 8 de la République (1799). Paris, 1802. 3 Vols. 4to.

Analyse Complette et Impartiale du Moniteur; suivie d'une Table Alphabétique des Personnes et des Choses. Paris, 1801. 3 Vols. 4to.

Diccionario Trilingue del Castellano, Bascuence, y Latin, su autor el Padre Manuel de Larremendi. San Sebastian, 1745. 2 Vols. Folio.

A Complete Dictionary, English and Dutch. Originally compiled by Mr. Sewel; augmented and improved by Egbert Buys. Amsterdam, 1766. 2 Vols. 4to.

An English and Swedish Dictionary. By Jacob Serenius. Second Edition. Harg and Stenbro (Sweden), 1757. 4to. To which is added, Dictionarium Suethico-Anglo-Latinum. Stockholm, 1741. 4to.

A Dictionary of the Portuguese and English Languages. By Anthony Vieyra Transtagano. London, 1773. 2 Vols. 4to.

A Dictionary of the Abnaki Language, in North America; by Father Sebastian Rasles. With Memoir and Notes by John Pickering. Cambridge, 1833. 4to.

Scripturæ Linguæque Phœniciæ. Guil. Gesenius. Lipsiæ, 1837. 4to.

Recherches sur les Langues Tartares. Par M. Abel-Rémusat. Paris, 1820. Tome I. 4to.

Gustavi Seyffarthi, Prof. Lips. Rudimenta Hieroglyphices. Lipsiæ, 1826. 4to.

Trèsor des Origines et Dictionnaire Grammatical raisonné de la Langue Française. Par Charles Pougens. Specimen. Paris, 1819. 4to.

Athanasii Kircheri Fuldensis Buchonii, Prodromus Coptus sive Ægyptiacus. Romæ, 1636. 4to.

The Origin and Progress of Writing, as well Hieroglyphic as Elementary. By Thomas Astle, Esq., F. R. S. Second Edition, with additions. London, 1803. 4to.

Uber die Kawi-Sprache auf der Insel Java, nebst einer Einleitung über die Verschiedenheit des menschlichen Sprachbaues und ihren

Einfluss auf die geistige Entwickelung des Menschengeschlechts. Von Wilhelm Von Humboldt. Berlin, 1836, 1839. 3 Vols. 4to.

Philological Tracts and Miscellanies, in various Languages. 4 Vols. 4to.

Cornelii Schrevelii Lexicon Manuale Græco-Latinum et Latino-Græcum. Londini, 1781. 8vo.

Lexicon Ægyptiaco-Latinum ex Veteribus Linguæ Ægyptiacæ Monumentis. Ab Henrico Tattam, A.M. Oxonii, 1835. 8vo.

Dictionarium Universale Latino-Gallicum. Ad usum Sermi Dombarum Principis. Parisiis, 1786. 8vo.

Hebrew and English Lexicon of the Old Testament, including the Biblical Chaldee. By Josiah W. Gibbs, A.M. Andover, 1824. 8vo.

Nouveau Dictionnaire François-Allemand et Allemand-François à l'Usage des deux Nations. Strasbourg, an. VIII. 2 Vols. 8vo.

Abundantissimum Cornucopiæ Linguæ Latinæ et Germanicæ Selectum. Opere et Studio Adami Friderici Kirschii. Noribergæ, 1718. 8vo.

A New Dictionary of the Spanish and English Languages. By Henry Neuman. London, 1802. 2 Vols. 8vo.

Johann Christoph Adelungs Auszug aus dem Grammatisch-Kritischen Wörterbuche der Hochdeutschen Mundart. Leipzig, 1793, 1802. 4 Vols. 8vo.

Archéologie Française, ou Vocabulaire de Mots anciens tombés en désuétude, et propres à être restitués au langage moderne. Par Charles Pougens. Paris (Didot), 1821, 1825. 2 Vols. 8vo.

Dictionnaire Français-Wolof et Français-Bambara, suivi du Dictionnaire Wolof-Français. Par M. J. Dard. Paris, 1825. 8vo.

Gradus ad Parnassum. Rothomagi, 1775. 8vo.

Dictionnaire Portatif, Russe-Français-Allemand. Riga, 1805. Small 4to.

Dictionnaire Portatif, Français-Russe-Allemand. Riga, 1805. Small 4to.

Deutch-Russisch-Französisches Taschen-Worterbuch. Riga, 1835. Small 4to.

Nouveau Dictionnaire de Poche Français-Allemand et Allemand-Français. Leipzig, 1802. Small 4to.

Dictionnaire François-Breton ou François-Celtique du Dialecte de Vannes. Leide, 1744. 12mo.

Grammaire de la Langue Arménienne. Par J. Ch. Cirbied, Arménien. Paris, 1823. 2 Vols. 8vo.

L'Alfabet Européen Appliqué aux Langues Asiatiques. Par C. F. Volney. Paris, 1819. 8vo.

Essai sur l'Origine de l'Écriture, sur son introduction dans la Grèce, et son usage jusqu'au temps d'Homère. Par M. le Marquis de Fortia d'Urban. Paris, 1832. 8vo.

Méthode pour Étudier la Langue Grecque Moderne. Par Jules David. Paris, 1827. 8vo.

Élémens de la Grammaire Turke. Par P. Amédée Jaubert. Paris, 1823. 4to.

Recherches Critiques et Historiques sur le Langue et la Littérature de l'Egypte. Par Etienne Quatremère. Paris, 1808. 8vo.

Histoire Naturelle de la Parole. Par Court de Gébelin. Avec un Discours Préliminaire. Par M. le Comte Lanjuinais. Paris, 1816. 8vo.

Précis du Système Hièroglyphique des Anciens Égyptiens. Par M. Champollion le jeune. Paris, 1824. 8vo.

Grammaire Générale et Philosophique. Par M. le Comte E. de Montlivault. Paris, 1828. 8vo.

Méthode pour Étudier la Langue Grecque. Par J. L. Burnouf. Paris, 1813. 8vo.

Grammaire Française de M. Charles-Constant Le Tellier, traduite en Grec Moderne sur le 39e Édition, augmentée, etc. Par Georges Théocaropoulos de Patras. Tome I. Paris, 1827. 8vo.

A Hebrew Grammar, with a copious Syntax and Praxis. By Moses Stuart. Andover, 1821. 8vo.

Russische Spruchlehre für Deutsche. Von Johann Heym. Riga, 1804. 8vo.

Ueber den Ursprung und die verschiedenartige Verwandtschaft der Europäischen Sprachen. Von Christian Gottlieb von Arndt. Frankfurt am Main, 1818. 8vo.

Die Sprache der alten Preussen. Von Johann Severin Vater. Braunschweig, 1821. 8vo.

Élémens de la Grammaire Japonaise, par le Père Rodriguez. Traduits du Portugais. Par M. C. Landresse. Paris, 1825. 8vo.

Élémens de la Grammar Chinoise. Par M. Abel-Rémusat. Paris, 1822. 8vo.

Hermes, or a Philosophical Inquiry concerning Universal Grammar. By James Harris, Esq. Sixth Edition. London, 1806. 8vo.

An Introduction to the Irish Language. By the Rev. Wm. Neilson, D.D. Dublin, 1808. 8vo.

Vergleichungstafeln der Europäischen Stamm-Sprachen und Süd-West-Asiatischer. R. K. Rask, and others. Halle, 1822. 8vo.

Proben Deutscher Volks-Mundarten, Dr. Seetzen's linguistischer Nachlass, und andere Sprach-Forschungen und Sammlungen, beforders üder Ostindien, herausgegeben von Dr. Johann Severin Vater. Leipzig, 1816. 8vo.

Apologia de la Lengua Bascongada, ò Ensayo crítico filosófico de su Perfeccion y Antigüedad sobre todas las que se conocen. Por D. Pablò Pedro de Astarloa. Madrid, 1803. 8vo.

Grammaire Romane, ou Grammaire de la Langue des Troubadours. Par M. Raynouard. Paris, 1816. 8vo.

Grammaire Générale. Par Auguste François Estarac. Paris, 1811. 2 Vols. 8vo.

Analekten der Sprachenkunde. Von Dr. Johann Severin Vater. Leipzig, 1821. 8vo.

Latin Syntax, chiefly from the German of C. G. Zumpt. By Charles Beck. Boston, 1838. 8vo.

Grammaire Philosophique, ou la Métaphysique, la Logique, et la Grammaire réunies en un seul corps de Doctrine. Par Dieudonné Thiebault. Paris, 1802. 2 Vols in 1. 8vo.

An Easy Introduction to the knowledge of the Hebrew Language, without the Points. By James P. Wilson, D.D. Philadelphia, 1812. 8vo.

Grammaire Arabe à l'usage des Elèves de l'École Spéciale des Langues Orientales vivantes, avec Figures. Par A. J. Silvestre de Sacy. Paris, 1810. 2 Vols. 8vo.

A Greek Grammar for the Use of High Schools and Universities. by Philip Buttman. Translated from the German, with additions, by Edward Robinson. Andover, 1833. 8vo.

Vocabulaire et Grammaire de la Langue Géorgienne. Par M. J. Klaproth. Paris, 1827. 8vo.

Versuch einer Literatur der Sanskrit-sprache. Von Frederich Adelung. St. Petersburg, 1830. 8vo.

A Grammar of the German Language, systematically arranged on a new plan. By Caspar J. Beleké. Philadelphia, 1840. 8vo.

A Grammar of the Spanish Language, with practical Exercises. By M. Josse. Revised by F. Sales. Boston, 1832. 8vo.

Grammaire Basque. Par M. H. Lécluse. Toulouse, 1826. 8vo.

Arte de Lengua Mexicana, Compuesto por el Bachillerd Antonio Vasquez Gastelu, el Rey de Figueros, &c. Corregido segun su

original por el Br. D. Antonio de Olmedo y Torre. 1716. Small 4to.

Abrégé de la Grammaire Polonaise. Par M. Sciborski. Lucko, 1789. 8vo.

Danish Grammar, adapted to the use of Englishmen. By Frederick Schneider. Copenhagen. 12mo.

Grammaire Hollandaise de Philippe la Grue. Corrigée et augmentée considérablement. Par Guillaume Sewel. Amsterdam, 1762. 12mo.

Principes de Grammaire Générale, mis à la portée des Enfans, et propres à servir d'Introduction à l'Étude de toutes les Langues. Par A. J. Silvestre de Sacy. Paris, 1822. 12mo.

El Impossible Vencido. Arte de la Lengua Bascongada. Su author El. P. Manuel Larramendi, de la Compañia de Jesus. En Salamanca, 1729. 12mo.

A Grammar of the Greek Language; translated from the French of I. L. Bernouf, by Edward Damphoux, D.D. Baltimore, 1825. 12mo.

Allgemeine Grammatik. Von Ludwig Heinrich Jacob. Leipzig, 1814. 12mo.

The Columbian Grammar: or an Essay for reducing a Grammatical Knowledge of the English Language to a degree of Simplicity. By Benjamin Dearborn. Boston, 1795. 12mo.

Litteratur der Grammatiken, Lexica und Wörtersammlungen aller Sprachen der Erde, nach alphabetischer Ordnung der Sprachen, mit einer gedrängten Uebersicht der Vaterlandes, der Schicksale und Verwandtschaft derselben. Von Dr. Johann Severin Vater. Berlin, 1815. 8vo.

Græcæ Grammaticæ Westmonasteriensis. By James Ross, A.M. Philadelphia, 1817. 12mo.

Traité de la Formation Méchanique des Langues et des Principes Physiques de l'Etymologie. (Par le President de Brosses,) Paris, An IX. 2 Vols. 12mo.

The Propaganda Collection of Alphabets, Grammars, and Vocabularies. 4 Volumes. 12mo.

Arte de la Lengua Mexicana. Por el Br. en sagrada Teologia D. Rafael Sandoval. En Mexico, 1810. 12mo.

Arte de la Lengua General del Reyno de Chile. Compuesto por el P. Andres Febres, misionero de la Comp. de Jesus. Año de 1760. Lima, 1765. 12mo.

De la Antiquedad, y Universalidad del Bascuenze en España; de sus perfecciones, y ventajas sobre otras muchas Lenguas, demonstra-

cion previa al Arte, que se derá a luz desta Lengua. Su author M. D. L. En Salamanca, 1728. 12mo.

Nouvelle Méthode, complette et facile, pour apprendre la Langue Allemande, par le moyen de la Françoise. A Strasbourg, 1699. 12mo.

Gronlandsk Grammatica. Otho Fabricius. Copenhagen, 1801. 12mo.

Principes Généraux de la Langue Danoise. Par Mathias Hagerup. Copenhagen, 1797. 12mo.

A Compendious Grammar of the Old Northern or Icelandic Language; compiled and translated from the Grammars of Rask. By George P. Marsh. Burlington, Vermont, 1838. 12mo.

Matthias Kramer's Niederdeutsche oder Hollandische Grammatik. Leipzig, 1774. 12mo.

The American System of English Syntax, developing the constructive principles of the English Phrenod or Language. By James Brown. Philadelphia, 1837. 12mo.

A short Introduction to Swedish Grammar, adapted for the use of Englishmen. By Gustavus Brunnmark, M.A. London, 1805. 12mo.

First Lessons in French: consisting of Rules and Directions for the attainment of a just Pronunciation. By Charles Picot. Philadelphia, 1840. 12mo.

The same Work: a new and improved edition. Philadelphia, 1843. 12mo.

Vocabulaire Nouveau, ou Dialogues Français et Bretons. Vannes. 12mo.

French Dialogues and Phrases, with an English Translation. By A. G. Collot. Philadelphia, 1835. 12mo.

African Lessons. Wolof and English. In three Parts. London, 1823. 12mo.

Lectures on the Greek Language and Literature. By N. F. Moore, LL.D. New York, 1835. 8vo.

A German Reader for Beginners: compiled and arranged by Caspar J. Beleké. Philadelphia, 1841. 12mo.

Elements of English and German Conversation on Familiar Subjects. By George Crabb. Fourth Edition. London, 1816. 12mo.

He Helunaau, he mea E Maa'i he Kanaka, i ku Helu i na Mea a Pau ma ka Noonoo Wale No. Na olelo ao mua keia a Warren Colburn. Oahu, 1836. 12mo.

Versuch eines praktischen Unterrichts in den Anfangsgrunden der

Deutschen Sprache mit beständiger Anwendung auf die Orthographie, &c. Von J. W. Berger. Cleve, 1810. 8vo.

Systema Phoneticum Scripturæ Sinicæ. Auctore J. M. Callery. Macao, 1841. 2 Vols. 8vo.

Dialoghi Piacevoli in Dialetto Vernacolo Triestino colla Versione Italiana di D. Giuseppe Mainati. Trieste, 1828. 8vo.

Historical View of the Slavic Language in its various Dialects. From the Biblical Repository, conducted by Edward Robinson, D.D. Andover, 1834. 8vo.

Uebersicht aller bekannten Sprachen und ihrer Dialekte. Von Friedrick Adelung. St. Petersburg, 1820. 8vo.

A Vocabulary of Words in the Hawaiian Language. Lahainaluna, 1836. 8vo.

Catecismo y Declaracion de la Doctrina Christiana en Lengua Otomi, con un Vocabulario del Mismo Idioma. Compuesto por el R. P. Fr. Joaquin Lopez Yepes. Megico, 1826. Small 4to.

Johann August Eberhards Synonymisches Handwôrterbuch der Deutschen Sprache. Reutlingen. 12mo.

Hoikehonua, he mea ia e Hoakaka'ii Ke ano o ka Honua Nei. A me Na mea. Oahu, 1836. 12mo.

Abinoji Aki Tibajimouin. In the Ojibwa Language. Boston, 1840. 12mo.

O-Jib-Ue Spelling Book, designed for the Use of Native Learners. Boston, 1835. 12mo.

Minuajimouin Gaizhibiiget au St. John. The Gospel of St. John in the Language of the Ojibwa Indians. Boston, 1838. 12mo.

Minuajemouin Gainajimot au St. Luke. By S. Hall and George Copway. Boston, 1837. 12mo.

Lutheri Catechismus ifwersalt på American-Virginiske Språket. Stockholm, 1696. 12mo.

Gallaudet's Picture Defining and Reading Book; also the New Testament Stories, in the Ojibwa Language. Boston, 1835. 12mo.

The Acts of the Apostles, translated into the Choctaw Language. Boston, 1839. 12mo.

Cours d'Étude pour l'Instruction du Prince de Parme. Par M. l'Abbé de Condillac. A Genève et à Lyon, 1789. 16 Vols. 12mo.

Œuvres de Du Marsais. Paris, 1797, An. V. 7 Vols. 8vo.

Des Tropes ou des différens sens dans lesquels ou peut prendre un même mot dans une même langue. Par M. Du Marsais. A Lyon, An. XII., 1804. 12mo.

Essai sur le Pali, ou Langue Sacrée de la Presqu'ile au-dela du Gange. Par E. Burnouf et Chr. Lassen. Paris, 1826. 8vo.

Geschichte der Neuern Sprachenkunde. Von Johann Gottfried Eichhorn. Göttingen, 1807. 8vo.

Melanges Philologiques: a Collection of Pamphlets. 5 Vols. 8vo.

Lettre à M. Dacier, relative à l'Alphabet des Hiéroglyphes Phonétiques employés par les Egyptiens, etc. Par M. Champollion le jeune. Paris, 1822. 8vo.

Examen Critique des Travaux de feu M. Champollion, sur les Hiéroglyphes. Par M. J. Klaproth. With other Pamphlets on Hieroglyphics. 8vo.

An Account of some Recent Discoveries in Hieroglyphical Literature and Egyptian Antiquities. By Thomas Young, M.D., F.R.S. London, 1823. 8vo.

Tableau des Peuples qui habitent l'Europe, classés d'après les langues qu'ils parlent, et Tableau des Religions qu'ils professent. Par Frédéric Schœll. Paris, 1812. 8vo.

Histoire des Cantabres, ou des premiers Colons de toute l'Europe, avec celle des Basques, et leur langue, etc. Par l'Abbé d'Iharce de Bidassouet. Paris, 1825. Tome 1er. 8vo.

Bibliotheca Sanscrita: Literatur der Sanskrit-sprache. Von Friedrich Adelung. St. Petersburg, 1837. 8vo.

Testamentitokab Makpérsegejsa Illangocet, Mosesim Aglegèjsa Ardlejt Tedlimejdlo, Iobid, Esrab, Nehemiab, &c. Kjöbenhavnime, 1832. 8vo.

Det Nye Testamente, oversat fra Grundsproget. London, 1814. 12mo.

The Gospels according to St. Matthew, St. Mark, St. Luke, and St. John, translated into the Language of the Esquimaux Indians, by the Missionaries of the Unitas Fratrum, or United Brethren. London, 1813. 12mo.

Vermischte Kritische und Satyrische Schriften. Von Joh. Jak. Dusch. Altona, 1758. 12mo.

Lettres Cabalistiques, ou Correspondance Philosophique, Historique, et Critique. Tome 1er. A la Haye, 1737. 12mo.

Natuur-Tafeveelen; Met Wetenschappelijke Opheldering. Door Alexander Von Humboldt. Naar het Hoogduitsch door Gerrit Troost. Hage, 1808. 8vo.

Extrait d'une Traduction MS., en Langue Berbère de quelques parties de l'Écriture Sainte: contenant XII. Chapitres de St. Luke. Londres, 1833. 8vo.

Untersuchungen über Amerika's Bevölkerung aus dem alten Kontinente dem Herrn Kammerherrn Alexander Von Humboldt gewidmet von Johann Severin Vater. Leipzig, 1810. 8vo.

Prüfung der Untersuchungen über die Urbewohner Hispaniens vermittelst der Baskischen Sprache. Von Wilhelm Von Humboldt. Berlin, 1821. Small 4to.

Ethnography of the Celtic Race. By J. C. Prichard, M.D., F.R.S. 8vo.

Briefwechsel zwischen Schiller und Wilhelm Von Humboldt. Stuttgart, 1830. 12mo.

Nene Karighwiyoston Tsinihorighhoten ne Saint John. The Gospel according to St. John. London. 12mo.

Précis de la Géographie Universelle, ou Description de toutes les parties du Monde, sur un plan nouveau. Par M. Malte-Brun. Paris, 1810—1829. 8 Vols. 8vo. With a folio volume of Charts.

Mémoires Relatifs à l'Asie, contenant des Recherches Historiques, Géographiques et Philologiques sur les Peuples de l'Orient. Par M. J. Klaproth. Paris, 1824—1828. 3 Vols. 8vo.

Of the Origin and Progress of Language. Second Edition, with large Additions and Corrections. (Lord Monboddo.) Edinburgh, 1774—1792. 6 Vols. 8vo.

Mithridates oder allgemeine Sprachenkunde mit dem Vater Unser als Sprachprobe in bey nahe fünfhundert Sprachen und Mundarten, von Johann Christoph Adelung. Berlin, 1806—1817. 4 Vols. in 6 Parts. 8vo.

Philosophical Essays. By Dugald Stewart, Esq. Philadelphia, 1811. 8vo.

A General View of the Progress of Metaphysical, Ethical, and Political Philosophy, since the Revival of Letters in Europe. In two Dissertations. By Dugald Stewart, Esq. Boston, 1822. 8vo.

Elements of the Philosophy of the Human Mind. By Dugald Stewart. New York, 1818. 2 Vols. 8vo. The 3d Volume, Philadelphia, 1827. 8vo.

The Works of Thomas Reid, D.D., F.R.S. Ed. Charlestown, (Mass.) 1813—1815. 4 Vols. 8vo.

Saggio di Lingua Etrusca e di altre antiche d'Italia per servire alla Storia de' Popoli, delle Lingue e delle Belle Arti dell' Ab. Luigi Lanzi. Edizione Seconda. Firenze, 1824—1825. 3 Vols. 8vo.

Storia degli Antichi Popoli Italiani di Giuseppe Micali. Firenze, 1832. 3 Vols. 8vo., and Folio Atlas.

Researches into the Physical History of Mankind. By James Cowles Prichard, M.D., F.R.S. Third Edition. London, 1836, 1837. 2 Vols. 8vo.

The Eastern Origin of the Celtic Nations proved by a Comparison of their Dialects with the Sanskrit, Greek, Latin, and Teutonic Languages. Forming a Supplement to Researches into the Physical History of Mankind. By James Cowles Prichard, M.D., F.R.S. Oxford, 1831. 8vo.

Journal Asiatique, ou Recueil de Mémoires, etc. etc., publié par la Société Asiatique. Paris, 1824—1827. 7 Vols. 8vo.

Nouveau Journal Asiatique, par la même Société. Paris, 1828—1835. 16 Vols. 8vo.

Journal Asiatique, par la même Société. Troisième Série. Paris, 1836—1839. 8 Vols. 8vo.

Société Asiatique: Rapports Annuels, 1823 to 1828, inclusive. 8vo.

Archæologia Americana: Transactions and Collections of the American Antiquarian Society. Cambridge, Mass., 1836. Vol. II. 8vo.

Introduction à l'Atlas Ethnographique du Globe. Par Adrien Balbi. Paris, 1826. Tome I. 8vo.

Vater's Sprachlehre. Halle, 1801—1804. 2 Vols. 12mo.

History of the European Languages; or Researches into the Affinities of the Teutonic, Greek, Celtic, Sclavonic, and Indian Nations. By the late Alexander Murray, D.D. Edinburgh, 1823. 2 Vols. 8vo.

De l'Influence de l'Écriture sur le Langage. Mémoire qui, en 1828, a partagé le prix fondé par Volney. Par A. A. E. Schleiermacher. Darmstadt, 1835. 8vo.

China, or Illustrations of the Symbols, Philosophy, Antiquities, Customs, Superstitions, Laws, Government, Education, and Literature, of the Chinese. Derived from Original Sources, and accompanied with Drawings from Native Works. By Samuel Kidd, Professor of the Chinese Language and Literature, University College, London. London, 1841. 8vo.

Cours de Littérature Française, par M. Villemain. Paris, 1828. 8vo.

Vues des Cordillères, et Monumens des Peuples indigènes de l'Amérique. Par Al. de Humboldt. Avec 19 planches, dont plusieurs coloriées. Paris, 1816. 2 Vols. 8vo.

Voyage aux Régions Équinoxiales du Nouveau Continent, fait en 1799, 1800, 1801, 1802, 1803 et 1804; par Al. de Humboldt et A. Bonpland, rédigé par Alexandre de Humboldt; avec un Atlas Géographique et Physique. Paris, 1816—1826. 12 Vols. 8vo.

A Collection of Orations and Public Discourses, bound in seven volumes 8vo.

A Collection of English Pamphlets. 17 Vols. 8vo.

A Collection of French Pamphlets. 12 Vols. 8vo.

A Collection of Miscellaneous Pamphlets. 3 Vols. 8vo.

A Collection of Loose Pamphlets.

A Manuscript Volume of Indian Vocabularies. Folio.

A Manuscript Volume, entitled, Minutes of a Chinese Lexicon. Translated from the Latin and enlarged, by J. W. Folio.

Essai de Solution du Problème Philologique proposé en l'année 1823, par la Commission de l'Institut Royal de France chargée de la disposition du Legs de M. le Comte de Volney. A Manuscript in 4to.

Eight Scrap Books, containing Slips or Cuttings from Newspapers.

Nine small MS. Note Books on subjects of Philology.

A MS. Vocabulary of various American Languages.

A MS. Common-place book.

Nouveaux Mélanges Asiatiques, ou Recueil de Morceaux de Critique et de Mémoires relatifs aux Religions, aux Sciences, aux Coutumes, à l'Histoire et à la Géographie des Nations Orientales. Par M. Abel-Rémusat. Paris, 1829. 2 Vols. 8vo.

Sprachatlas to Asia Polyglotten. By Julius Klaproth. Paris, 1823. Folio.

[The whole number of printed volumes announced was 353; besides which there are numerous pamphlets.]

Fifty-seventh Annual Report of the Regents of the University of the State of New York. Made to the Legislature February 28, 1844. Albany. 8vo.—*From the Regents.*

The African Repository and Colonial Journal. Vol. XX. No. 4. April, 1844. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. II. No. 17. May, 1844. 8vo.—*From Lea & Blanchard.*

Will of Stephen Girard. Opinion of the Supreme Court of the

United States, delivered February 27, 1844, by Mr. Justice Story. Philadelphia, 1844. 8vo.—*From Thomas P. Cope.*

Dr. Patterson announced the death of the senior member of the Society, Mr. Benjamin Chew, who died in Germantown on the 30th ultimo, aged 86 years.

He likewise announced the death of Judge Baldwin, who died in Philadelphia on the 21st of April.

On motion of Dr. Patterson, Mr. Charles J. Ingersoll was appointed to prepare an obituary notice of Mr. Chew.

On motion of Dr. Dunglison, Mr. Kane was appointed to prepare an obituary notice of Judge Baldwin.

Professor Frazer, on the part of the Committee consisting of himself, Mr. M'Euen, and Professor Bache, appointed on the paper of Professor Locke, read at the last meeting, reported in favour of publication, which was ordered accordingly.

On motion, leave was granted to Mr. Thomas Gilpin to read a printed paper, entitled, "On the Representation of Minorities of Electors to act with the Majority in Elected Assemblies," which he has addressed to the American Philosophical Society.

Dr. Hays drew the attention of the Society to a case of defective vision, arising, he conceived, from modified refractive power on the part of the crystalline; which he illustrated by diagrams. The communication gave occasion to observations from Dr. Patterson, Professors Cresson and Frazer, Mr. Richards, Mr. Dillingham, Mr. Smith, and Dr. Bache. Professor Cresson related a case in which a person was incapable of distinguishing vertical lines; but with the use of concave glasses he could discover vertical, but not horizontal lines. The defect was remedied by the use of cylindrical glasses. Dr. Hays alluded to a case in which the humours of the eye were doubly refractive; but he did not think that such was the fact in the example of defective vision which he had related to the Society. He had, indeed, proved by experiment that it was not so.

Dr. Dunglison, in the absence of Mr. Kane, Reporter for the year 1843, announced the publication of No. 28 of the So-

ciety's Proceedings; and as Reporter for the present year, he announced that No. 29 of the Proceedings, to April last, would be issued in a day or two; and that both numbers would be distributed together to non-resident members.

Stated Meeting, May 17.

Present, twenty-two members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were announced and read:—

From the Royal Bavarian Academy of Sciences at Munich, dated June 22, 1843, requesting an interchange of Transactions, &c., between the two Societies, and enclosing a list of the prizes proposed by the Mathematico-physical class of the Academy for the year 1843.

On motion of Mr. Kane, it was resolved that the Royal Bavarian Academy should be placed on the list of correspondents of the Society, and that the Transactions and Proceedings of the Society should be regularly transmitted to it.

From the New York Historical Society, dated New York, May 8, 1844, acknowledging the receipt of the Transactions of the Society:—

From the Baron de Ladoucette, dated Paris, February 20, 1844, on presenting a copy of a work of which he is the author:—

From Mr. C. J. Ingersoll, dated Washington, May 6, 1844, stating that his public occupations would render it impossible for him to perform the task assigned him, of delivering an obituary notice of the late Mr. Chew.

The following donations were announced:—

FOR THE LIBRARY.

Almanach der königlichen bayerischen Akademie der Wissenschaften. München, 1843. 12mo.—*From the Royal Academy of Sciences of Munich.*

Journal of the Franklin Institute. Third Series. Vol. VII. May, 1844. No. 5.—*From Dr. Patterson.*

Bulletin des Séances de la Société Royale et Centrale d'Agriculture, Compte rendu mensuel. Rédigé par M. Soulange Bodin, Vice-Sécrétaire. Tome 1er. 1837—1840. Paris, 1841. 8vo. Tome 2d. 1841, 1842. Paris, 1842. 8vo.—*From Mr. D. B. Warden, Paris.*

Essai sur l'Instruction des Femmes, par Mme. la Comtesse de Groing la Maisonneuve. Troisième Édition. Tours, 1844. 12mo.—*From the same.*

Amélioration du Régime Alimentaire des Hôpitaux, des Pauvres et des Grandes Réunions d'Hommes vivant en commun. Par M. D'Arcet. Paris, 1844. 8vo.—*From the same.*

Nouvelles, par J. C. F. Ladoucette. Deuxième Édition. Paris, 1844. 8vo.—*From the Author.*

Théorie des Machines Simples, en ayant égard au frottement de leurs parties, et à la roideur des cordages. Pièce qui a remporté le Prix double de l'Académie des Sciences pour l'Année, 1781. Par M. Coulomb. Paris, 1809. 4to.—*From Professor John F. Frazer.*

Lectures on the more important Diseases of the Thoracic and Abdominal Viscera. Delivered in the University of Pennsylvania. By N. Chapman, M.D. Philadelphia, 1844. 8vo.—*From the Author.*

On the Representation of Minorities of Electors to act with the Majority, in elected Assemblies. Philadelphia, 1844. 8vo.—*From Thomas Gilpin.*

Dr. Patterson gave an account of an automaton speaking machine, which Mr. Franklin Peale and himself had recently inspected.

The machine was made to resemble as nearly as possible, in every respect, the human vocal organs; and was susceptible of varied movements by means of keys. Dr. Patterson was much struck by the distinctness with which the figure could enunciate various letters and words. The difficult combination *three* was well pronounced—the *th* less perfectly but astonishingly well. It also enumerated diphthongs, and numerous difficult combinations of sounds. Sixteen keys were sufficient to produce all the sounds. In enunciating the simple sounds, the movements of the mouth could be seen. The

parts were made of gum elastic. The figure was made to say with a peculiar intonation, but surprising distinctness, "Mr. Pat-ter-son, I am glad to see you." It sang "God save Victoria," and "Hail, Columbia," the words and air combined. Dr. Patterson had determined to visit the maker of the machine, Mr. Faber, in private, in order to obtain farther interesting information; but on the following day Dr. P. was distressed to learn, that in a fit of excitement he had destroyed every particle of a figure which had taken him seventeen years to construct.

Professor Henry made a second communication on the subject of cohesion.

He had prosecuted his experiments on the soap bubble to a greater extent, and had arrived at a number of results which appeared to him of some interest in reference to capillarity, a subject which had given rise to a greater diversity of opinion than any other part of natural philosophy. As an evidence of its present unsettled state, he mentioned the fact, that the last edition of the Encyclopædia Britannica contained two articles on this subject, under different names; one by Dr. Young, and the other by Mr. Ivory, which explain the phenomena on entirely different physical principles.

According to the theory of Young and Poisson, many of the phenomena of liquid cohesion, and all those of capillarity, are due to a contractile force existing at the free surface of the liquid, and which tends in all cases to urge the liquid in the direction of the radius of curvature towards the centre, with a force inversely as this radius. According to this theory the spherical form of a dew-drop is not the effect of the attraction of each molecule of the water on every other, as in the action of gravitation in producing the globular form of the planets, (since the attraction of cohesion only extends to an unappreciable distance) but it is due to the contractile force which tends constantly to enclose the given quantity of water within the smallest surface, namely, that of a sphere. Professor H. finds a contractile force perfectly similar to that assumed by this theory in the surface of the soap bubble; indeed, the bubble may be considered a drop of water with the internal liquid removed, and its place supplied by air. The spherical force in the two cases is produced by the operation of the same cause. The contractile force in the surface of the bubble is easily shown by blowing a large bubble on the end of a wide tube, say an inch in diameter; as soon as the mouth is removed, the bubble will be seen to diminish rapidly, and at the same time quite a forcible

current of air will be blown through the tube against the face. This effect is not due to the ascent of the heated air from the lungs with which the bubble was inflated, for the same effect is produced by inflating with cold air, and also when the bubble is held perpendicularly above the face, so that the current is downwards.

Many experiments were made to determine the amount of this force, by blowing a bubble on the larger end of a glass tube in the form of the letter U, and partially filled with water; the contractile force of the bubble, transmitted through the enclosed air, forced down the water in the larger leg of the tube, and caused it to rise in the smaller. The difference of level observed by means of a microscope, gave the force in grains per square inch, derived from the known pressure of a given height of water. The thickness of the film of soap water which formed the envelope of the bubble, was estimated as before by the colour exhibited just before bursting. The results of these experiments agree with those of weighing the bubble, in giving a great intensity to the molecular attraction of the liquid; equal at least to several hundred pounds to the square inch. Several other methods were employed to measure the tenacity of the film, the general results of which were the same: the numerical details of these are reserved, however, until the experiments can be repeated with a more delicate balance.

The comparative cohesion of pure water and soap water was determined by the weight necessary to detach the same plate from each; and in all cases the pure water required the greater force. The want of permanency in the bubble of pure water is therefore not due to feeble attraction, but to the perfect mobility of the molecules, which causes the equilibrium, as in the case of the arch without friction of parts, to be destroyed by the slightest extraneous force.

Several other experiments with films of soap water were also described, which afford striking illustrations of the principles of capillarity, and which apparently have an important bearing on the whole subject of cohesion.

Professor Henry's communication gave rise to observations from Dr. Ludlow, Professor Frazer, and Mr. Trautwine.

On motion, the Librarian was authorized to present a copy of the Catalogue of the Library to the Academy of Natural Sciences of Philadelphia.

Stated Meeting, June 21.

Present, twenty-four members.

Dr. Bache, Vice-President, in the Chair.

Letters were announced and read:—

1. From M. Quetelet, President of the Commission Centrale de Statistique, of Belgium, dated Bruxelles, Jan. 31, 1844, on transmitting the first volume of the Bulletin of the Commission, and stating that it would be agreeable to the Commission to receive in exchange any American publications connected with statistics, and the sciences relating thereto:—

2. From the Imperial Society of Naturalists of Moscow, dated Moscow, Sept. 28, 1843, accompanying a donation of Transactions of that Society:—

3. From the Massachusetts Historical Society, dated Boston, May 31, 1844, acknowledging the receipt of Vol. IX. Part 1, of the new series of the Transactions of the Society:—

4. From the British Association for the Advancement of Science, dated London, March 1, 1844, inviting the members of the Society to the next meeting of the Association, to be held in the City of New York, on the 26th of Sept. 1844:—

5. From Prince Maximilian de Wied, (being an extract from a letter from him to Dr. Morton,) dated Nieu-Wied on the Rhine, and accompanying a donation of his Travels into the interior of North America, from 1832 to 1834:—

6. From Professor Rümker, dated Hamburg, April 23, 1844, containing the elliptic elements, ephemeris, and a comparison with the observations of the Comet discovered by Mr. Bremiker, calculated by Mr. Götze:—

Perihelion passage, 1840, Jan. 31^{d}.70143 m. t. Berlin.		
*Longitude of the ascending node,	248° 55′ 57″.15	
*Inclination of the plane of the orbit,	57 57 51.59	
Distance of perihelion from node,	133° 36′ 8″.33	
Angle of eccentricity $= \varphi$ of Gauss,	76 5 21.52,	where $\sin \varphi = e$
Log. of least distance,	0.1705436	
Log. of semi-axis major,	1.7032559	
Log. δ = Log. $(1 - e)$,	8.4672877	

* Referred to the ecliptic and the mean equinox of 1841, Jan. 0.

From these elements, the following co-ordinates of the comet have been computed with reference to the equator, the mean equinox of 1841, Jan. 0, and Bessel's mean obliquity of the ecliptic, 23°27′36″.06.

$$x = r\ [9.7865707] \sin (v + 97^{\circ}\ 36'\ 53''.34)$$
$$y = r\ [9.9989828] \sin (v + 12\ 41\ 53.70)$$
$$z = r\ [9.8998221] \sin (v + 105\ 42\ 19.84)$$

And for the reduction of these co-ordinates to the actual apparent equator, I have used the following differential formulæ.

$$d\,x = r\ [9.97884] \sin (v + 212^{\circ}\ 3'\ 22)\ d\,\Omega$$
$$d\,y = x \cos \varepsilon\ d\,\Omega - z\ d\,\varepsilon$$
$$d\,z = x \sin \varepsilon\ d\,\Omega + y\ d\,\varepsilon$$

where $d\,\Omega$ is the reduction of the mean to the apparent equinox, and $d\,\varepsilon$ is the difference of the apparent from the mean obliquity of the ecliptic.

With these formulæ, and with the assistance of the excellent tables given by Bessel in the 12th volume of the Monatliche Correspondenz, the comet's co-ordinates have been carefully computed with reference to the apparent equator; and by the aid of the sun's co-ordinates in the Berlin Jahrbuch for 1841, the corresponding geocentric places of the comet have been obtained free from aberration. Whence the following ephemeris for mean noon, Berlin, has been prepared, with the hundredths of a second, as correct as they can be obtained from the solar tables with seven placed logarithms.

Date.	App. R. A.	App. Dec.	Log. Δ	Log. r.	s 493.15 Δ	Log. 8s.5776 Δ
1840.						
Oct. 27	279° 47′ 31″.82	+ 60° 55′ 18″.51	0.0449701	0.1764649	9′ 6″.95	0.88840
29	282 9 34.48	+ 60 56 16.90	0.0375830	0.1752183	8 57.72	0.89579
31	284 41 41.68	+ 60 55 45.44	0.0301131	0.1741138	8 48.55	0.90326
Nov. 2	287 24 4.98	+ 60 53 18.02	0.0225905	0.1731544	8 39.48	0.91078
4	290 16 47.55	+ 60 48 25 18	0.0150474	0.1723422	8 30.54	0.91832
6	293 19 43.52	+ 60 40 34.18	0 0075221	0.1716791	8 21.77	0.92585
8	296 32 34.10	+ 60 29 9.02	0.0000000	0.1711668	8 13.22	0.93331
10	299 54 47.92	+ 60 13 31.25	9.9927071	0.1708065	8 4.94	0.94066
12	303 25 37 21	+ 59 53 2 02	9.9855225	0.1705992	7 56 98	0.94785
14	307 3 57.96	+ 59 27 1 93	9.9785668	0.1705453	7 49.41	0.95480
16	310 48 30.68	+ 58 54 53.34	9.9719081	0.1706450	7 42.26	0 96146
18	314 37 41.73	+ 58 16 2.76	9.9656188	0.1708980	7 35.62	0 96775
20	318 29 47.31	+ 57 30 2 15	9.9597773	0.1713039	7 29.53	0 97359
22	322 22 55 69	+ 56 36 31 24	9.9544637	0.1718614	7 24.06	0 97891
24	326 15 16 29	+ 55 35 18.56	9.9497600	0.1725692	7 19.28	0.98361
26	330 5 1.99	+ 54 26 23 45	9.9457471	0.1734256	7 15.24	0.98762
28	333 50 34.32	+ 53 9 36.53	9.9425040	0.1744286	7 12.00	0.99087
30	337 30 28.94	+ 51 46 18.98	9 9401018	0.1755756	7. 9.62	0.99327
Dec. 2	341 3 36.74	+ 50 16 3.25	9.9386055	0.1768643	7 8.14	0.99476
4	344 29 5.09	+ 48 39 50.42	9.9380674	0.1782913	7 7.61	0.99530
6	347 46 18 33	+ 46 58 30.12	9.9385282	0.1798536	7 8 07	0.99484
8	350 54 55.01	+ 45 12 57.82	9.9400130	0.1815476	7 9.53	0.99336
10	353 54 47.96	+ 43 24 12.47	9.9425306	0.1833697	7 12.03	0.99084
12	356 45 59.79	+ 41 33 15.11	9.9460748	0.1853157	7 15.57	0.98730
14	359 28 43.24	+ 39 41 6 48	9.9506208	0.1873819	7 20.15	0.98275
16	2 3 16.19	+ 37 48 44.87	9.9561314	0.1895639	7 25.77	0.97724
18	4 30 1.58	+ 35 57 4.22	9.9625541	0.1918572	7 32.41	0.97082
20	6 49 24 57	+ 34 6 54.00	9.9698256	0.1942575	7 40.06	0.96354
22	9 1 53.53	+ 32 18 56 78	9.9778743	0.1967604	7 48.65	0.95550
24	11 7 54 63	+ 30 33 49.17	9 9866217	0.1993612	7 58.19	0.94675
26	13 7 55.01	+ 28 52 0 24	9.9959868	0.2020552	8 8.62	0 93738
28	15 2 21 39	+ 27 13 52 66	0.0058882	0 2048381	8 19.88	0.92748
30	16 51 38.40	+ 25 39 42 74	0.0162455	0.2077051	8 31.95	0.91712
1841.						
Jan. 1	18 36 9.41	+ 24 9 41.37	0 0269835	0 2106518	8 44.76	0.90639
3	20 16 16 48	+ 22 43 54 30	0 0380293	0 2136734	8 58 28	0 89534
5	21 52 20.38	+ 21 22 23 44	0.0493184	0.2167657	9 12.46	0.88405

The following comparison of the elements with the observations published in Volume 18th of Schumacher's Ast. Nachr., cleared of parallax and aberration, leaves the annexed differences. The times are not yet freed from aberration, and are those of the respective meridians of the places of observation.

BERLIN.

Date.	Berlin Mean Time.	Observed R. A.	$\Delta\ \alpha \cos\delta$ Reck.—Obs.	Observed Dec.	$\Delta\ \delta$ Reck.—Obs.
1840.	h				
Oct. 27	10 17′ 46″.00	280° 16′ 43″.13	+ 0″.20	+ 60° 55′ 36″.42	+ 0″.74
28	8 25 11.00	281 21 46.77	+ 4.31	+ 60 56 5.47	+ 1.01
29	8 25 41.00	282 35 30.63	− 12.40	+ 60 56 18.17	+ 0.40
30	6 54 24.00	283 45 44.86	+ 3.83	+ 60 56 12.18	− 3.53
30	8 10 40.00	283 49 52.65	+ 2.09	+ 60 56 9.32	− 1.89
31	8 8 25.00	285 8 9.55	− 3.92	+ 60 55 32.77	− 3.06
Nov. 1	7 49 8.00	286 27 45.88	− 2.09	+ 60 54 28.87	− 5.92
2	9 22 31.00	287 56 35.16	− 2.64	+ 60 52 39.32	− 5.34
3	7 34 59.00	289 16 8.00	− 2.64	+ 60 50 34.83	− 10.20
9	12 26 35.00	299 4 39.63	+ 1.52	+ 60 17 43.88	+ 1.22
11	7 27 8.00	302 11 17.98	+ 4.30	+ 60 0 44.66	+ 0.29
12	8 34 55.00	304 3 29.30	+ 1.71	+ 59 48 53.58	− 0.72
1841.					
Jan. 10	8 6 12.00	25 51 11.49	− 15.19	+ 18 5 58.11	− 19.12
20	8 2 3.00	32 24 17.84	+ 5.38	+ 13 11 4.55	− 25.21
Feb. 7	6 51 7.00	42 17 36.05	− 4.45	+ 7 26 28.74	− 26.03
16	7 54 59.00	46 42 26.02	+ 0.45	+ 5 33 17.95	− 0.45

HAMBURG.

1840.					
Oct. 31	8 22 0.08	285 10 0.55	− 13.96	+ 60 55 29.78	− 1.06
Nov. 1	6 52 26.82	286 25 54.27	− 19.23	+ 60 54 31.32	− 5.88
2	10 28 10.86	288 1 21.31	− 5.38	+ 60 52 11.31	+ 16.09
3	5 50 5.24	289 10 37.67	− 2.93	+ 60 51 11.03	− 36.45
3	7 15 19.82	289 15 51.50	− 5.14	+ 60 50 33.82	− 8.54
4	13 20 2.14	291 7 14.14	− 9.15	+ 60 46 37.56	− 4.71
11	6 55 59.20	302 10 10.74	− 0.64	+ 60 0 48.25	+ 4.18
12	6 27 11.41	303 55 20.93	− 10.70	+ 59 50 3.21	− 13.66
13	8 5 4.80	305 51 43.64	− 14.34	+ 59 36 5.87	+ 9.14
14	9 29 42.97	307 48 45.84	− 11.17	+ 59 21 20.41	− 13.37
15	6 41 14.84	309 27 37.80	− 8.02	+ 59 7 7.08	+ 2.43
18	6 34 54.83	315 10 14.58	− 11.42	+ 58 9 57.82	+ 6.82
19	6 48 36.13	317 7 21.67	− 13.15	+ 57 47 16.43	− 0.84
20	6 25 23.65	319 1 37.34	− 4.95	+ 57 23 14.51	− 2.17
24	6 44 42.53	326 48 31.37	− 8.74	+ 55 26 0.42	− 4.02
25	6 25 2.60	328 41 51.72	− 2.50	+ 54 52 15.58	+ 6.38
26	7 9 17.20	330 39 43.87	− 9.35	+ 54 15 27.53	− 9.37
29	7 33 59.12	336 16 38.39	− 8.89	+ 52 15 47.33	− 15.43
Dec. 2	9 11 4.79	341 44 19.20	− 11.79	+ 49 58 5.26	− 13.31
3	7 7 2.82	343 18 12.58	− 0.56	+ 49 13 42.97	+ 22.37
3	8 49 21.41	343 25 39.78	− 8.43	+ 49 10 54.29	− 16.13
13	7 42 40.03	358 34 54.95	− 5.65	+ 40 19 5.74	− 6.58
14	7 0 57.17	359 52 21.52	− 9.40	+ 39 24 20.63	+ 5.18
16	8 50 43.24	2 31 35.41	− 17.97	+ 37 27 59.42	− 8.61
18	7 34 23.16	4 52 46.96	+ 0.57	+ 35 39 34.84	− 14.78
19	8 47 55.90	6 6 29.18	− 7.97	+ 34 41 30.08	− 9.03
21	8 2 41.39	8 18 55.37	− 2.94	+ 32 54 45.79	− 26.47
23	7 58 57.91	10 26 55.93	− 6.77	+ 31 8 40.11	− 19.49
25	7 42 23.08	12 28 3.07	+ 0.34	+ 29 26 11.80	− 13.55
26	8 8 10.01	13 27 53.82	+ 1.08	+ 28 34 54.95	− 1.16
27	9 31 19.89	14 28 58.34	− 19.05	+ 27 43 46.35	+ 6.77

7. From the Corporation of the University of Cambridge, Mass. dated Cambridge, May 2, 1844, acknowledging the receipt of Proceedings and Transactions of the Society:—

8. From Mr. D. C. Freman, dated Washington, N. C., June 3, 1844, suggesting the publication of the whole of the obituary notice of Judge Gaston, read before the Society by Mr. Dillingham; and on motion of Mr. Kane permission was granted to the author to publish the same should he desire it.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society of London. Vol. VI. Nos. 3, 4, 5. 8vo.—*From the Society.*

Nouveaux Mémoires de la Société Impériale des Naturalistes de Moscou. Tome VII. Formant le tome XIII. de la Collection. Moscow, 1842. 4to.—*From the Society.*

Royaume de Belgique. Ministère de l'Intérieur. Bulletin de la Commission Centrale de Statistique. Tome I. Bruxelles, 1843. 4to.—*From the Central Commission.*

Statistique de la Belgique. Population, Mouvement de l'État Civil pendant l'année 1841. Publié par le Ministre de l'Intérieur. Bruxelles, 1843. Folio.—*From the same.*

Astronomical Observations made at the Radcliffe Observatory, Oxford, in the year 1841. By Manuel J. Johnson, Radcliffe Observer. Published by order of the Radcliffe Trustees. Oxford, 1843. Vol. II. 8vo.—*From the Radcliffe Trustees.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. VII. No. 6. June, 1844. 8vo.—*From Dr. Patterson.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. I. December, 1841. No. 9. Vol. II. March and April, 1844. No. 2.—*From the Academy.*

The African Repository and Colonial Journal. Vol. XX. Nos. 5 and 6. May and June, 1844. 8vo.—*From the American Colonization Society.*

The Annals and Magazine of Natural History, including Zoology, Botany and Geology. Vol. XII. Nos. 77, 78, 79, 80. 8vo.—*From Sir Wm. Jardine, Bart.*

Magazine of Zoology and Botany. Vol. II. No. 10. October, 1837. 8vo.—*From the same.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. I. No. 4. April, 1844. 8vo.—*From the Editor.*

Reise in das Innere Nord-America in den Jahren, 1832 bis 1834. Von Maximilian, Prinz zu Wied. Erster Band. Coblenz, 1839. 4to. Zweiter Band. Coblenz, 1841. 4to. With an Atlas of Plates in Folio.—*From Maximilian, Prince of Wied.*

History of the United States, from the Discovery of the American Continent. By George Bancroft. Vol. III. Tenth Edition. Boston, 1844. 8vo.—*From the Author.*

Magnetical Investigations. By the Rev. Wm. Scoresby, D.D., F.R.S., etc. etc. Part I. London, 1839. 8vo. Part II. London, 1843. 8vo.—*From the Author.*

Essays on Magnetism. By the Rev. Wm. Scoresby. Edinburgh, 1832–3. 8vo.—*From the same.*

Remarks on the Probability of Reaching the North Pole. By the Rev. Wm. Scoresby. From the Edinburgh New Philosophical Journal, for July, 1828. 8vo.—*From the same.*

On some Circumstances connected with the Original Suggestion of the Modern Arctic Expeditions. Communicated by the Rev. Wm. Scoresby, D.D., in a Letter to the Editor of the Edinburgh New Philosophical Journal. 8vo.—*From the same.*

Notizie Elettriche. By Ferdinando Elice. Genoa, 10th March, 1844. 12mo.—*From the Author.*

Report of Capt. George W. Hughes (Topographical Engineers) relative to the Working of Copper Ore. Senate Document, 28th Congress, No. 291.—*From Col. J. J. Abert.*

Annual Report of Commissioner of Patents. 28th Congress, First Session, No. 177. House of Representatives.—*From the Hon. J. R. Ingersoll.*

The Medical News and Library. Vol. II. June, 1844. No. 18. 8vo.—*From Messrs. Lea & Blanchard.*

A Lecture on the Study of Botany. Read before the Ladies' Botanical Society, at Wilmington, Delaware, March 2, 1844. By Wm. Darlington, M.D. 8vo.—*From the Author.*

Reliquiæ Baldwinianæ: Selections from the Correspondence of the late William Baldwin, M.D. With Occasional Notes, and a Short Biographical Memoir. Compiled by Wm. Darlington, M.D. Philadelphia, 1843. 12mo.—*From W. H. Dillingham, Esq.*

Ueber die Sterblichkeit der Weiszen und der Schwarzen im Strafhause von Philadelphia.—*From B. H. Coates, M.D.*

A Hebrew Lexicon, transcribed from Dr. John Taylor's Concordance of the Holy Scriptures. 4to. MS.—*From Mrs. Mary Taylor.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 497 to 502, inclusive. 4to.

Professor Hart stated, for the information of the Society, that the Transit Instrument at the Observatory of the High School is now in complete operation, and that observations are made with it nightly.

Dr. Bridges made some observations on the affinity between certain metals, and especially on the belief that iron and mercury cannot be amalgamated. He exhibited a specimen in which such amalgamation existed. He first observed this accidentally. The mercury in the specimens adhered very firmly to the iron.

Mr. Lukens referred to cases in which the amalgamation had been effected when an iron plate was scraped under mercury; in other words, when the contact of air was prevented.

Dr. Patterson, on the part of the Committee of Finance, made a report, recommending three hundred dollars to be appropriated for the publication of the Society's Transactions, which, on motion, was agreed to.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JULY—DECEMBER, 1844. No. 31.

Stated Meeting, July 19.

Present fifteen members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were announced and read:—

From the Connecticut Historical Society, dated Hartford, April 25, 1844, acknowledging the receipt of Nos. 28 and 29 of the Proceedings of the Society:—

From the Academy of Natural Sciences of Philadelphia, dated Philadelphia, June 23, 1844, acknowledging the donation by this Society of its Transactions, Vol. IX. Part 1. New Series:—

From M. Gustave d'Eichthal, dated Paris, Dec. 20, 1843, on presenting a memoir on the primitive history of the Oceanic and American races:—

From Mr. F. Stoughton to Mr. Thos. Dunlap, dated New York, June 25, 1844, in reference to a package from the Society, forwarded by Mr. Stoughton to the Royal Academy of History at Madrid:—

From the National Institute at Washington, in reference to certain resolutions of the Committee of the Institute, concerning the publication of a third part of the Proceedings of the Institute:—

From Dr. T. Romeyn Beck, dated Albany, July 1, 1844, informing the Society, that by a late law, the State Library of New York had been placed under the care of the Regents of the University; and, also, in reference to certain deficiencies

in the sets of the "Proceedings" of this Society, and to the Transactions of the Historical and Literary Committee: when, on motion of Dr. Dunglison, it was resolved, that so much of Dr. Beck's letter as relates to the subjects above mentioned be referred to the Librarian, with power to take order thereon.

The following donations were announced:—

FOR THE LIBRARY.

Archives du Muséum d'Histoire Naturelle, publiées par les Professeurs Administrateurs de cet Établissement. Tome III. Livraison 4e. Paris, 1843. 4to.—*From the Professors of the Museum.*

Annales des Mines. Quatrième Série. Tome IV. 5e Livraison de 1843. 8vo.—*From the Engineers of Mines, Paris.*

Journal Asiatique. Quatrième Série. Tome II. Nos. 9 and 10. Nov., Dec., 1843. 8vo. Tome III. Nos. 11 and 12. Jan., Feb., March, 1844.—*From the Asiatic Society of Paris.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. No. 3. May, June, 1844. 8vo.—*From the Academy.*

Mémoire sur l'Histoire Primitive des Races Océaniennes et Américaines, lu à l'Académie des Sciences Morales et Politiques les 9 et 16 Septembre, 1843. Par M. Gustave d'Eichthal. 8vo.—*From the Author.*

Crania Ægyptiaca; or Observations on Egyptian Ethnography, derived from Anatomy, History, and the Monuments. By Samuel George Morton, M.D. From the Transactions of the American Philosophical Society, Vol. IX. Philadelphia, 1844. 4to.—*From the Author.*

Institut Royal de France. Calendrier pour l'année, 1843. 12mo.—*From D. B. Warden, Esq., of Paris.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XV. July, 1844. 8vo.—*From the Editor.*

The Medical News and Library. Vol. II. July, 1844. No. 19. 8vo.—*From Lea & Blanchard.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. VIII. July, 1844. 8vo.—*From Dr. R. M. Patterson.*

President's Message and accompanying Documents, containing the Negotiations and Treaty of Washington; also Reports, and Map

of Texan Boundary, and of the North-Eastern Boundary. December, 1842. 8vo.—*From Major J. D. Graham.*

Map of the Boundary Lines between the United States and the adjacent British Provinces, from the mouth of the River St. Croix to the intersection of the Parallel of 45 degrees of North Latitude, with the River St. Lawrence near St. Regis. Showing the Lines as respectively claimed by the United States and Great Britain under the Treaty of 1783, as awarded by the King of the Netherlands, and as settled in 1842 by the Treaty at Washington. Compiled under the direction of Major J. D. Graham, of the Topographical Engineers, Commissioner. Seven copies in sheets, one copy mounted.—*From the same.*

Profile with the Spirit Level of the due North Line from the Monument at the Source of the River St. Croix to the River St. John. Surveyed in 1840 and 1841, under the direction of Major J. D. Graham, etc. etc. Five copies in sheets, 1 copy mounted.—*From the same.*

A Map of the Extremity of Cape Cod, including the Townships of Provincetown and Truro: with a Chart of their Sea Coast and of Cape Cod Harbour, State of Massachusetts. Executed under the direction of Major J. D. Graham, U. S. Topographical Engineers, during portions of the years 1833, 1834, and 1835. Engraved by order of the House of Representatives of the United States, under the direction of the Bureau of Topographical Engineers, to accompany Document 121, 26th Congress, 2d Session. Seven copies, fine paper, 4 sheets each.—*From the same.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences; par MM. les Secrétaires Perpétuels. Tome XVIII. Nos. 5 to 18 inclusive, 1844. 4to.

Astronomische Nachrichten. Professor Schumacher, Editor. Nos. 503 and 504. May 9 and 23, 1844. 4to.

Dr. Bache announced the decease of Dr. John C. Otto, a member of the Society, who died in Philadelphia on the 26th June, 1844, aged 70 years.

In answer to a question put by Dr. Patterson, Mr. Lukens stated, that the amalgamation of mercury with iron, which was referred to by him at the last meeting, was observed by Professor Ellett, of South Carolina.

Dr. Bridges remarked, that he had tried the experiment by scraping iron under mercury, but had not succeeded in effecting any amalgamation. He considered, that the amalgamation in the case, which he had described at the last meeting, was complete.

The Treasurer reported, that the whole expenses of the centennial celebration amounted to six hundred and eleven dollars and two cents.

Stated Meeting, August 16th.

Present, fourteen members.

Dr. CHAPMAN, Vice-President, in the Chair.

Letters were announced and read:—

From the Horticultural Society, dated London, May 7th, 1844:—

From the Linnæan Society, dated London, May 29th, 1844: and

From the Zoological Society, dated London, May 16th, 1844; respectively acknowledging the receipt of Part I, Vol. IX. of the Transactions of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London. For the Year 1841. 2 Parts. 4to. For the Year 1843. 2 Parts. 4to.—*From the Royal Society.*

List of the Royal Society, 30th November, 1843. 4to.—*From the same.*

Proceedings of the Royal Society. Nos. 56 to 58, inclusive, 1842, 1843. 8vo.—*From the same.*

Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the Years 1840 and 1841; under the direction of George Biddell Airy, Esq., M. A., Astronomer Royal. Published by order of the Board of Admiralty, in obedience to Her Majesty's command. London, 1843. 4to.—*From the same.*

Proceedings of the Royal Irish Academy, for the Year 1842–3. Part VII. Dublin, 1844. 8vo.—*From the Academy.*

The American Journal of Science and Arts. Conducted by Professor Silliman, and Benjamin Silliman, Jr. Vol. XLVII. No. I. July, 1844. 8vo.—*From the Editors.*

The African Repository and Colonial Journal. July and August, 1844. Vol. XX. Nos. 7 and 8. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. VIII. August, 1844. No. 2. 8vo.—*From Dr. R. M. Patterson.*

The Medical News and Library. Vol. II. August, 1844. No. 20. 8vo.—*From Lea & Blanchard.*

A Theory of the Structure of the Siderеal Heavens, including an Explanation of the Phenomena of Via Lactea and Nebulæ; founded on a new Astronomical Doctrine; being a General Explication of the Astral Collocations upon Geometrical Principles. Part the First. London, 1842. 4to. Anon.—*From the Author.*

An Elementary Treatise on Mineralogy: comprising an Introduction to the Science. By William Phillips, F. L. S. etc. Fifth Edition, from the Fourth London Edition. By Francis Alger. Boston, 1844. 8vo.—*From the Editor, F. Alger.*

The Practice of Medicine: a Treatise on Special Pathology and Therapeutics. By Robley Dunglison, M. D., Professor of the Institutes of Medicine in Jefferson Medical College, Philadelphia; Secretary of the American Philosophical Society, etc. etc. Second Edition. Philadelphia, 1844. 2 Vols. 8vo.—*From the Author.*

Human Health; or the Influence of Atmosphere and Locality; Change of Air and Climate; Seasons; Food; Clothing, etc. etc.; constituting Elements of Hygiène. By Robley Dunglison, M.D., etc. etc. A new Edition, with many Modifications and Additions. Philadelphia, 1844. 8vo.—*From the Author.*

An Autograph Letter from the Rev. Nevil Maskelyne, B.D., F.R.S., Astronomer Royal, to the Rev. Dr. Ewing, formerly Provost of the University of Pennsylvania, dated Greenwich, August 4th, 1775, on the subject of a Project for erecting an Observatory at Philadelphia.—*From Harrison Hall, Esq.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Philosophical Transactions of the Royal Society of London. For the Year 1808. Part 2. 4to. N. B. The first part of this Vol. is wanting.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences, par MM. les Secrétaires Perpetuels. Tome XVIII. Nos. 19 to 22 inclusive. 4to.

Tables des Comptes Rendus. Deuxième Semestre, 1843. Tome XVII. 4to.

Dr. Patterson presented a communication, entitled "Observations for the Magnetic Dip, made at several positions, chiefly on the South-western and North-eastern portions of the United States, and of the Magnetic Declination at two points on the River Sabine, in 1840, by Major James D. Graham, of the U. S. Corps of Topographical Engineers," which was referred to a Committee, consisting of Mr. Walker, Dr. Patterson, and Professor Frazer.

An autograph letter from Dr. N. Maskelyne, Astronomer Royal, to the Rev. Dr. Ewing, dated Greenwich, Aug. 4, 1775, in relation to a projected Observatory at Philadelphia, was presented to the Society by Mr. Harrison Hall, and read by the Secretary.

Greenwich, Aug. 4, 1775.

Sir,—I received your late favour, together with your observations of the comet of 1770, and some of that of 1769, for which I thank you, and shall, I believe, communicate to the Royal Society as you give me leave. In the present unhappy situation of American affairs, I have not the least idea that any thing can be done toward serecting an observatory at Philadelphia, and therefore cannot think it proper for me to take any part in any memorial you may think proper to lay before my Lord North at present. I do not mean, however, to discourage you from presenting any memorial from yourself. Were an observatory to be erected at Philadelphia, I do not know any person at Philadelphia more capable of taking the care of it than yourself. Should Lord North do me the honour to ask my opinion about the utility of erecting an observatory at Philadelphia, I should then be enabled to speak out, being always a well-wisher to the promotion of science. You did not distinguish whether the times of your observations were apparent or mean time.

I am, sir,

Your most humble servant,

N. MASKELYNE.

The Rev. Dr. Ewing,

At No. 25 Ludgate Street.

Mr. Smith drew the attention of the Society to sundry improvements in the manufacture of glass for telescopes, and read an extract from the 18th Vol. of the Comptes Rendus, being a communication from M. Arago in relation to the cost of lenses of immense magnitude, which a manufacturer in France proposes to fabricate. The advantages attainable from lenses of such magnitude, some of which have been ordered by the French government, were depicted by Mr. Smith, whose observations gave occasion to remarks from Mr. Justice and Dr. Patterson.

Dr. Dunglison, Reporter, laid before the Society No. 30 of the Proceedings of the Society, from April to June inclusive.

Stated Meeting, September 20.

Present, twenty-eight members.

Dr. Bache, Vice-President, in the Chair.

Letters were announced and read:—

From the Secretary of State, dated Washington, August 24, 1844, announcing that he had forwarded eighteen volumes of the Documents of the Third Session of the Twenty-seventh Congress, for the Library of the Society:—

From the Society for the Encouragement of Arts, Manufactures, and Commerce, dated London, July 17, 1844, acknowledging the receipt of Nos. 28 and 29 of the Proceedings of this Society:—

From Mr. Edward Newman, dated London, July 20, 1844, acknowledging the receipt of Vol. VIII., and the first part of Vol. IX. of the Transactions of this Society; and announcing that he had sent for the Library the third and last part of his History of British Ferns:—

From Col. Totten, dated Engineer Department, Washington, August 21, 1844, on presenting to the Library a copy of Papers on Practical Engineering, No. 2; being a special report on the sea wall at Lovell's Island, in the harbour of Boston, by Col. S. Thayer, Corps of Engineers:—

From Professor Locke, dated Cincinnati, August 13, 1844, accompanying another series of Observations on Terrestrial Magnetism, &c.

The following donations were announced:—

FOR THE LIBRARY.

Public Documents, Third Session, 27th Congress, 1842–43. Senate Documents, 4 Vols. 8vo. Senate Journal. 8vo. House Journal. 8vo. Executive Documents. 8 Vols. 8vo. Reports of Committees. 4 Vols. 8vo. Eighteen Volumes in all.—*From the Secretary of State.*

Philosophical Transactions of the Royal Society of London, for the Year 1844. Part I. London, 1844. 4to.—*From the Royal Society.*

Astronomical Observations made at the Royal Observatory, Greenwich, in the Year 1841, under the direction of George Biddell Airy, Esq., M.A., Astronomer Royal. Published by order of the Board of Admiralty, in obedience to Her Majesty's command. London, 1843. 4to.—*From the same.*

The same Observations made in the Year 1842. London, 1844. 4to.—*From the same.*

Catalogue of the Places of 1439 Stars, referred to the 1st of January, 1840; deduced from the Observations made at the Royal Observatory, Greenwich, from 1836, January 1st, to 1841, December 31. London, 1843. 4to.—*From the same.*

Proceedings of the Geological Society of London. Vol. IV. No. 97. 8vo.—*From the Society.*

Transactions of the Royal Geological Society of Cornwall. Instituted February 11, 1814. Vol. V. 8vo.—*From the Society.*

Royal Geological Society of Cornwall. Twenty-ninth and Thirtieth Annual Reports of the Council, with the President's Address, and Papers and Notices read to the Society. Penzance, 1842–43. 8vo.—*From the same.*

Report of the Thirteenth Meeting of the British Association for the Advancement of Science; held at Cork, in August, 1843. London, 1844. 8vo.—*From the British Association.*

Royal Astronomical Society of London. Proceedings, Vol. VI. Nos. 6, 7, 8. 8vo.—*From the Society.*

Boletin Enciclopédico de la Sociedad Económica de Amigos del Pais. Avril, Mayo. Año 5°. Tomo 3°. Valencia, 1844. 8vo.—*From the Society.*

Boston Journal of Natural History. Containing Papers and Communications, read before the Boston Society of Natural History. Vol. IV. No. 4. Boston, 1844. 8vo.—*From the Society.*

The African Repository and Colonial Journal. Vol. XX. No. 9. September, 1844. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute. Third Series. Vol. VIII. September, 1844. No. 3. 8vo.—*From Dr. Patterson.*

Papers on Practical Engineering. Published by the Engineer Department, for the use of the Officers of the United States Corps of Engineers. No. 2. A Special Report on the Sea Wall, built in the Year 1843, for the Preservation of Ram Head, at the N. W. end of Lovell's Island, in the Harbour of Boston, Massachusetts. By Col. S. Thayer, U. S. Corps of Engineers. Washington, 1844. 8vo.—*From Col. Totten, Engineer Department.*

The Electrical Magazine. Vol. I. No. 5. July, 1844. Published Quarterly. London. 8vo.—*From Charles V. Walker, Esq., Editor.*

The Zoologist: a Popular Monthly Magazine of Natural History, &c. Nos. XVI to XX. inclusive. April to August, 1844. London. 8vo.—*From Edward Newman, Esq., Editor.*

The Phytologist: a Botanical Journal. Nos. 38 and 39. July, August, 1844. London. 8vo.—*From the same.*

A History of British Ferns: by Edward Newman, F. L. S., B. S. &c. 2d Edition. Part 3. London, 1844. 8vo.—*From the same.*

The Medical News and Library. Vol. II. September, 1844. No. 21. 8vo.—*From Lea & Blanchard.*

Descriptions of Shells, from the Province of Tavoy, in British Burmah.—*By Augustus A. Gould, M.D.*

Descriptions and Notices of some of the Land Shells of Cuba. By the same. From the Boston Journal of Natural History. Vol. IV. No. 4.—*From the Author.*

The Medical Student: or, Aids to the Study of Medicine. A revised and modified edition. By Robley Dunglison, M.D., &c. Philadelphia, 1844. 12mo.—*From the Author.*

Street Talk, about an Ordinance of Councils, passed the 11th July, 1844, organising a Military Force, &c.—*From Charles Ingersoll, Esq.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Professor Schumacher, Editor. Nos. 505 to 510, inclusive, June 15 to July 25, 1844. Title and Index to Vol. XXI. 4to.

Dr. Dunglison announced, that he would be prepared to deliver, pursuant to appointment, the discourse in commemoration of the late President of the Society, in the course of next month. Whereupon, on motion of Mr. Kane, a committee consisting of Mr. Kane, Mr. Ord, and Dr. Patterson, was appointed to make the necessary arrangements.

Mr. Charles J. Ingersoll announced the death of Joseph Bonaparte, Count Survilliers, a member of the Society, who died at Florence, on the 28th day of July, 1844, in his 77th year. A high eulogium on his character was delivered by Mr. Ingersoll, as well as by Dr. Chapman, and on motion of the latter, Mr. Ingersoll was appointed to prepare an obituary notice of the deceased.

Professor Locke presented a farther series of observations on Terrestrial Magnetism, which was referred to the same Committee as the former. The Committee are Professor Frazer, Mr. M'Ewen, and Professor Bache.

Mr. Kane, on the part of a Committee to negotiate with individuals who have claims against the Society, reported progress.

Mr. Smith drew the attention of the Society to certain phenomena, presented by a house provided with a lightning rod, and recently struck by lightning. The electrical fluid did not strike the rod, but communicated with it before reaching the ground. Mr. Smith considered that the rod was not sufficiently elevated above the house.

Stated Meeting, October 4.

Present, sixteen members.

Dr. BACHE, Vice-President, in the Chair.

Letters were announced and read:—

From the Proprietors of the Bowditch Library, dated Boston, September, 1844, acknowledging the receipt of No. 30 of the Proceedings of this Society:—and

From the Horticultural Society, dated London, August 6, 1844, acknowledging the receipt of Nos. 28 and 29, of the Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

Annales des Mines. Redigés par les Ingénieurs des Mines. Quatrième Série. Tome IVe. VIe. Livraison de 1843. Novembre, Décembre. 8vo.—*From the Engineers of Mines of Paris.*

Journal Asiatique, ou Recueil des Mémoires, etc. Publiée par la Société Asiatique. Quatrième Série. Tome III. Nos. 13, 14. Avril, Mai, 1844. 8vo.—*From the Asiatic Society of Paris.*

Almanach der königlichen bayerischen Akademie der Wissenschaften für das Jahr 1844. München. 12mo.—*From the Royal Bavarian Academy of Sciences.*

Twenty-third Report of the Council of the Leeds Philosophical and Literary Society, at the close of the Session 1842–3. Leeds, 1843. 8vo.—*From the Society.*

Description of Six supposed New Species of Parasites. By Henry Denny. Article XXXVIII. of the 12th Volume of the Annals and Magazine of Natural History.—*From the Author.*

Tijdschrift voor natuurlijke Geschiedenis en Physiologie. Uitgegeven door J. Van der Hoeven, M.D., en W. H. de Vriese, M.D. Tiende Deel, 4^e Stuk, 1843. Elfde Deel, 1^e Stuk, 1844. Elfde Deel, 2^e Stuk, 1844. 8vo.—*From the Editors.*

An Address on the Recent Progress of Geological Research in the United States. Delivered at the Fifth Annual Meeting of the Association of American Geologists and Naturalists, held at Washington, D. C., May, 1844. By Henry D. Rogers, Professor of Geology in the University of Pennsylvania. Philadelphia, 1844. 8vo.—*From the Author.*

An Historical Review of the Constitution and Government of Pennsylvania from its Origin; so far as regards the several Points of Controversy, which have, from time to time, arisen between the several Governors of Pennsylvania and their several Assemblies. Philadelphia, 1808. 8vo.—*From Dr. Philip Tidyman.*

Document No. 223. 28th Congress, 1st Session. House of Representatives, Treasury Department.—*From E. Joy Morris, Esq. M. C.*

An Address delivered before the Society of the Alumni of Harvard University, on their Anniversary, Aug. 27, 1844. By Daniel Appleton White. 8vo.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secrétaires Perpétuels. Tome XVIII. Nos. 23 to 26, inclusive. Tome XIX. Nos. 1 to 4, inclusive. 4to.

Dr. Chapman announced the death of Mr. Meredith, a member of this Society, on the 26th of September, in his 73d year.

He likewise announced the death of Dr. William Jacobs, of Santa Cruz, in the West Indies, also a member of the Society; and, on motion, Dr. Horner was appointed to deliver an obituary notice of Dr. Jacobs.

Mr. Ord, on the part of the Committee appointed at the last meeting, stated that they had taken the Musical Fund Hall for Friday evening, the 25th inst. for the occasion of the delivery of the commemorative discourse, to be delivered by Dr. Dunglison, on the late President of the Society.

Stated Meeting, October 18.

Present, eighteen members.

Dr. Bache, Vice-President, in the Chair.

Letters were announced and read:—

From the New York Historical Society, dated New York, Oct. 1844, acknowledging the receipt of certain numbers of the Proceedings of the Society:—

From the Geographical Society of London, dated London, May 22, 1844, acknowledging the receipt of the Transactions of this Society, Vol. IX. Part 1; and a second letter, dated London, Aug. 6, 1844, acknowledging the receipt of Nos. 28 and 29 of the Proceedings:—

From Count Cancrine, dated St. Petersburg, Oct. 1843, on transmitting a copy of a periodical issued by the Imperial Administration of Mines, which contains the magnetic and meteorological observations made under its direction:—and

From Dr. Asa Gray, dated Harvard University, Sept. 28, 1844, in relation to Transactions and Proceedings of this Society, transmitted and to be transmitted to the Royal Academy of Sciences of Munich.

The following donations were announced:—

FOR THE LIBRARY.

The Journal of the Royal Geographical Society of London. Vol. XIV. Part I. 1844. 8vo.—*From the Society.*

Proceedings of the Geological Society of London. With Plates, in illustration of the papers abstracted. Session 1843–44. Vol. IV. Part 2. No. 98. 8vo.—*From the Society.*

Annuaire Magnétique et Météorologique du Corps des Ingénieurs des Mines de Russie, ou Recueil d'Observations Magnétiques et Météorologiques, faites dans l'entendue de l'Empire de Russie, et publiées par ordre de S. M. l'Empereur Nicholas I., et sous les auspices de M. le Comte Cancrine, Chef du Corps des Ingénieurs des Mines, et Ministre des Finances. Par A. T. Kupffer. Année 1841. In 2 Parts. St. Petersburg, 1843. 4to.—*From the Imperial Administration of Mines, through H. E. Count Cancrine.*

The History of the late Province of New York, from its discovery to the appointment of Governor Colden, in 1762. By the Hon. William Smith. New York, 1839. 2 Vols. 8vo. These Volumes are the Fourth and Fifth of the First Series of the Collections of the New York Historical Society.—*From the New York Historical Society.*

Proceedings of the New York Historical Society, for the Year 1843. New York, 1844. 8vo.—*From the Society.*

Constitution and By-laws of the New York Historical Society. Revised, March, 1844. 8vo.—*From the Society.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XVI. New Series. October, 1844. 8vo.—*From the Editor.*

The Medical News and Library. Vol. II. October, 1844. No. 22. 8vo.—*From Lea & Blanchard.*

Notes on Northern Africa, the Sahara and Soudan, in relation to the Ethnography, Languages, History, Political and Social Condition, of the Natives of those Countries. By William B. Hodgson, late Consul of the United States at the Regency of Tunis. New York, 1844. 8vo.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomishe Nachrichten. Nos. 511, 512, 513. 4to.

Mr. Justice drew attention to some specimens of fish and of stalactites, obtained from the Mammoth Cave in Kentucky.

The Society proceeded to the consideration of the stated business of the evening—the balloting of candidates for membership in the Society; but it appearing that there were only fifteen qualified members present, the election could not be proceeded with.

Stated Meeting, Nov. 1.

Present, eighteen members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were announced and read:—

From the Corporation of the University of Cambridge, dated August 24, acknowledging the receipt of No. 30, of the Proceedings of this Society:—

From Mr. Wagner to Mr. Ord, dated York, England, September 30, 1844, giving some account of the early part of the meeting of the British Association in September last:—

From the Cincinnati Society, dated Philadelphia, October 23, 1844:—

From the Law Academy, dated Philadelphia, October 25, 1844:—and,

From the Academy of Natural Sciences, dated October 23, 1844, severally accepting the invitation of the Committee of the Society to attend the discourse by Dr. Dunglison, in commemoration of the late President.

The following donations were announced:—

FOR THE LIBRARY.

Annales des Mines, redigées par les Ingénieurs des Mines. Quatrième Série. Tome V. 1re Livraison, de 1844. 8vo.—*From the Engineers of Mines, Paris.*

Journal Asiatique. Quatrième Série. Tome III. No. 15. Juin, 1844. 8vo.—*From the Asiatic Society of Paris.*

Boletin Enciclopédico de la Sociedad Económica de Amigos del Pais. Agosto, 1844. Tomo 3o. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. No. 4. July and August, 1844. 8vo.—*From the Academy.*

The African Repository and Colonial Journal. Vol. XX. No. 10. October, 1844. 8vo.—*From the American Colonization Society.*

The American Journal of Science and Arts. Conducted by Professor Silliman and B. Silliman, Jr. Vol. XLVII. No. 2. October, 1844. 8vo.—*From the Editors.*

Calcutta Journal of Natural History: and Miscellany of the Arts and Sciences in India. Vol. IV. Calcutta, 1844. 8vo.—*From Dr. Dunglison.*

The Medical News and Library. Vol. II. November, 1844. No. 23. 8vo.—*From Lea & Blanchard.*

Descriptions of Malayan Plants. By William Jack. Arranged according to their Natural Families from the Malayan Miscellany. From the Calcutta Journal of Natural History, Vol IV. No. 13. 1843. 8vo.—*From the Editors of the Calcutta Journal.*

Der Tausend und Einen Nacht. Ubersezt von Joseph von Hammer; und aus dem Französischen in's Deutsche von Aug. E. Zinserling. Vols. II. and III. Stuttgart, 1824. 8vo.—*From Dr. Dunglison.*

Anatomical Atlas, illustrative of the Structure of the Human Body. By Henry H. Smith, M.D. Under the supervision of William

E. Horner, M.D. Philadelphia, 1844. 8vo.—*From the Author.*

Report of the Commissioners appointed by the Secretary of the Navy to examine the several Plans of Floating Docks, submitted to the Department, September 10, 1842. 8vo.—*From Walter R. Johnson, Esq.*

Arguments of the Defendant's Counsel, and Judgment of the Supreme Court, U. S., in the Case of Vidal and another, *versus* the Mayor, &c., of Philadelphia, the Executors of Stephen Girard and others, Defendants and Appellees. January Term, 1844. Philadelphia, 1844. 8vo.—*From Thomas P. Cope, Esq.*

A Collection of Russian Poems; and a Russian Almanac, for 1832. 12mo.—*From the Executors of P. S. Du Ponceau.*

List of books bequeathed to the Society by its late President, Mr. Du Ponceau, and omitted in the catalogue of May 3d last.

Britain and America: a Collection of Pamphlets on the Public Affairs of the Two Nations. 3 Vols. 8vo.

Essai sur les Langues en Général; sur la Langue Française en particulier, et sa progression depuis Charlemagne jusqu'à present. Par M. Sablier. Paris, 1777. 8vo.

Essai Synthétique sur l'Origine et la Formation des Langues. Paris, 1774. 8vo. Anonymous. (L'Abbé Copineau.) Bound up with the above.

Den Gronlandste Ordbog, forbedret og foroget, udgivet ved Otho Fabricius. Copenhagen, 1804. 12mo.

Preces S. Niersis Clajensis Armeniorum Patriarchæ viginti quatuor Linguis Editæ. Venetiis, 1823. 12mo.

Key to the French Language: being a Complete Course of Study on a new Plan, with all the recent Improvements. By J. A. Weisse. Boston, 1842. 12mo.

A volume of French Pamphlets.

ADDITION TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XIX. Nos. 5 to 9, inclusive. 30th July to 26th August, 1844. 4to.

Professor Frazer, from the Committee, consisting of himself, Professor A. D. Bache, and Mr. M'Euen, to whom was referred the second paper of Professor Locke on Magnetical Observations, reported in favour of its publication, which was ordered accordingly.

Professor Locke's paper contains a continuation of his observations upon the magnetic dip and intensity, made at different points in the United States during the year 1844, and includes thirty-five sets of observations made at twenty-four different stations. He then gives a series of thirteen observations made at three stations, viz: Fort Lee, N. Y., Snake Hill, and Patterson, N, J., intended to show the remarkable changes which take place both in the dip and intensity, in passing from rocks of the usual kind, to those belonging to the trappean family; which changes, so far as they regard the magnetic intensity, he announces in the following terms:—"The intensity, which ordinarily has a value along a line of moderate length not varying beyond certain moderate limits, becomes, at the base of a trappean pinnacle, extraordinarily diminished, and at the top of the same still more extraordinarily increased." These changes, as well as those of the dip which follow the same law, are illustrated by diagrams, in which the values of the dip and intensity are represented as the ordinates of a curve, the distances between the stations being taken upon the line of abscissas. Professor Locke believes these changes to be due to the assumption of magnetic properties by the trappean rocks, the axis of the magnet coinciding with the axis of figure of the hill, which is generally vertical.

Professor Locke strongly urges the propriety of multiplying observations upon these phenomena, in order to develop the general law; and concludes by returning his thanks to Col. Sabine and the British Association for the kindness and liberality with which they have tendered their assistance in his labours.

Professor Frazer, on the part of Mr. Haldeman, presented a communication, entitled "Observations on General Phonology and Alphabetic Notation, with an Attempt to adapt the Roman Alphabet to Exotic Languages, by S. S. Haldeman, A.M.," which, on motion, was referred to a Committee, consisting of Dr. Dunglison, Mr. Pickering, and Dr. Bethune.

Mr. Kane, on the part of the Committee of Arrangements, consisting of himself, Mr. Ord, and Dr. Patterson, made the

following report in regard to the discourse in commemoration of the late President, delivered by Dr. Dunglison:—

That pursuant to the notice heretofore communicated to the Society, the discourse in commemoration of our late President, Mr. Du Ponceau, was pronounced by Dr. Dunglison on the 25th of October, 1844, at the Musical Fund Hall. The Society was honoured on the occasion by the presence of the relatives of the deceased, and of numerous ladies, many of the reverend clergy, the members of the diplomatic corps, the State Society of the Cincinnati, and the officers of the army and navy in the city at the time; the officers of the several municipal corporations, the judges of the courts of the United States and State, the trustees and professors of the University and Colleges, the members of the different learned and literary societies, and a large number of citizens. The Committee herewith present the manuscript of the Discourse, and submit for the consideration of the Society the following resolutions:—

1. *Resolved*, That the Discourse pronounced by Dr. Dunglison in commemoration of the late President, Mr. Du Ponceau, be published under the directions of the Committee of Arrangements.

2. *Resolved*, That the Treasurer be, and he is hereby authorized to pay the several expenses incurred, and to be incurred, by the Committee, under the orders of the Society, provided the same shall not exceed the sum of two hundred dollars.

Both the above resolutions were agreed to by the Society.

Mr. Kane announced the death of Mr. Nathan Dunn, a member of the Society, who died at Vevay, in Switzerland, on the fifteenth of September; and, on motion, Dr. Emerson was appointed to deliver an obituary notice of the deceased.

Stated Meeting, November 15.

Present, twenty-five members.

Dr. Bache, Vice-President, in the Chair.

A letter was read from the executive committee of the New York Historical Society, dated New York, October 28, 1844,

inviting the American Philosophical Society to their fortieth anniversary celebration, on Wednesday, the 20th of November. On motion, a special letter of acknowledgment was directed to be addressed to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Report intended to illustrate a Map of the Hydrographical Basin of the Upper Mississippi River, made by J. N. Nicollet, while in employ under the Bureau of the Corps of Topographical Engineers. Washington, 1843. Two copies. 8vo. Senate, 26th Congress, 2d Session, No. 237.—*From Colonel J. J. Abert, U. S. Topographical Engineers.*

Quarterly Summary of the Transactions of the College of Physicians of Philadelphia. Vol. 1. Nos. VII. and VIII. From May, 1843, to October, 1844, inclusive. 8vo.—*From the College of Physicians.*

Encyclopædia Britannica: or, a Dictionary of Arts, Sciences, and Miscellaneous Literature; enlarged and improved. The Sixth Edition. Illustrated with nearly six hundred Engravings. Edinburgh, 1823. 23 Volumes. 4to.

Supplement to the Fourth, Fifth, and Sixth Editions of the Encyclopædia Britannica, with Preliminary Dissertations on the History of the Sciences. Illustrated by Engravings. Edinburgh, 1844. 6 Volumes. 4to.—*From Clement C. Biddle, Esq.*

An Oration delivered at Cambridge, before the Phi Beta Kappa Society in Harvard University, August 29th, 1844. By George Putnam. Boston, 1844. 8vo.—*From Henry D. Rogers.*

Descriptio Anatomico-Pathologica Uteri duplicis, quorum uterque vario tempore gravidus erat. With a Plate. By Professor Bujalsky. St. Petersburg, 1832. A folio pamphlet in the Russian Language.—*From the Author.*

An Account of the Transposition of the Human Viscera. By Professor Bujalsky. In Russian. St. Petersburg, 1829. A folio pamphlet.—*From the Author.*

On motion of the Librarian, the thanks of the Society were given to Col. Biddle, for the valuable present of a copy of the Encyclopædia Britannica: Sixth Edition, with Supplements.

The Committee, consisting of Mr. Walker, Dr. Patterson,

and Professor Frazer, on Major Graham's communication presented on the 16th of August, and entitled "Observations on the Magnetic Dip, made at several positions, chiefly on the South-western and North-eastern frontiers of the United States, and of the Magnetic Declination at two points on the River Sabine, in 1840," reported in favour of the publication of the same, in an abridged form, in the Transactions of the Society, but as the report was not accompanied by such abridgment, as required by the laws of the Society, the paper was recommitted.

A communication was read from Professor Loomis, entitled "Astronomical Observations made at Hudson Observatory. Lat. 41° 14′ 42′6 North, and Longitude 5*h*. 25*m*. 39*s*.5 West, Third Series," which was referred to a Committee, consisting of Mr. Walker, Dr. Patterson, and Professor Kendall.

A letter from Professor Alexander, of Princeton, to Mr. Walker, dated College of New Jersey, Nov. 13th, 1844, was read, which contained a notice of some Astronomical Observations communicated to him by M. Bessel, of Königsberg, in regard to the proper motions of Procyon in Declination, and of Sirius in Right Ascension.

"One of the latest results (says M. Bessel), which have offered themselves to me, appears to be a very important one for Practical Astronomy. I have been enabled by my own observations made during the last thirty years, and also by those made at other Observatories since 1750, to establish as an indubitable fact, that the proper motions of Procyon in Declination, and of Sirius in Right Ascension, are *not* proportional to time. The difference being very sensible, it will no longer be permitted to suppose the places of these stars known for any time by their observations made at *two* epochs.

"The fact of a variable proper motion seems to indicate, that stars, which are subject to it, are parts of comparatively *small* systems, such as are double stars. The phenomenon cannot be explained by *attraction*, if the distance of the attracting mass is not very small in proportion to the distance of the star from the Sun.

A Memoir upon "this interesting matter is now printing in the Astronomische Nachrichten."

M. Bessel pays a tribute to the zeal with which Astronomy

is now cultivated in America, and to the valuable matter recently contributed by American astronomers.

Dr. Patterson remarked, that this discovery of Bessel further increased the difficulties of Practical Astronomy. First, the stars were considered as *fixed;* afterwards, their proper motions were ascertained, but were supposed to be uniform. Now these proper motions are found to be variable.

Mr. Walker observed, that there was difficulty in supposing the existence of an opake centre of attraction, and that possibly the stars Sirius and Procyon were stellar systems not divisible by our telescopes.

Mr. Walker gave a brief account of the progress of Professor Kendall's observations at the High School Observatory, since the mounting of the Ertel Meridian Circle.

The circle had been tested by reading with each of the four verniers, for every 5°, and the circle was found not to have been injured in transition, nor in mounting. The average reduction of the reading of any one vernier to that of the mean of the four being about 3″.

Although 50 feet high, the insulated tower was so still that the stars could be observed with great facility and certainty, by reflection from quicksilver, with a power of 200. The first trials of the instrument had given for the latitude of the Observatory 39° 57′ 7″; and the polar point determined by any two successive culminations of polaris differed not more than 1″ from the point obtained by the fundamental stars, using for their declinations the most recent values given by Bessel and Airy.

Mr. Walker also remarked, that the latitude found for the High School Observatory, by Mr. Paine, with the sextant of the Massachusetts Survey, as well as that which Messrs. Kendall, Riggs and himself had found from sextant observations,—after applying to the declinations of the stars formerly used, the more recent corrections of Airy,—differed less than a second from the indications of the Ertel Meridian Circle.

Mr. Walker regarded this coincidence as confirmatory of his former remarks on Mr. Paine's method of determining latitudes by a sextant, in the Proceedings, Vol. II., page 166; a conclusion of great importance, when we consider that all the latitudes of the Massachusetts survey depended upon this method.

He further stated, that Professor Kendall and his assistants had

made extensive observations of the two recent comets with the Equatorial, and had computed their elements and ephemeris, and published them in the daily papers, for immediate circulation among astronomers.

Mr. Walker concluded by remarking, that a review of the stars in the zone, from the 15th to the 30th parallel of south declination, had been commenced and carried on thus far by Mr. Joseph S. Hubbard, now Assistant of the Topographical Corps. The catalogue now contains about 250 double stars, of which only about 100 can be found in the Herschell's or South's Catalogues.

Dr. Hare mentioned, that a roseate tint may be imparted to the light from carburetted hydrogen, by the interposition of mica.

A thin sheet of this substance, curved into the cylindrical form so as to enter a glass chimney, will retain the form thus imparted, in consequence of its elasticity and the confinement of the including glass. Thus employed, mica had been found competent to correct the lurid influence of gas illumination, so much objected to by all who are desirous to appear "couleur de rose."

Very neat chimneys had been constructed, and maintained in the cylindrical form, by frames of tin plate, secured by rivets. Of course, the more delicate the frames, consistently with due firmness, the better. However costly at first, mica chimneys, he believed, would be cheaper in the long run, than those in common use.

When employed within a glass chimney, as he had described, the mica afforded the glass much protection against the flaming gas.

The mica, by which these results were obtained, when in thick plates, had a brownish red tinge, whether seen by reflected or by transmitted light.

Dr. Hare likewise entered into some arguments and considerations respecting a recent speculation of Mr. Faraday, on electric conduction, and the nature of matter, contained in the London and Edinburgh Philosophical Magazine and Journal, for February, 1844. This speculation will be fully stated and discussed by Dr. Hare, in a forthcoming number of Silliman's American Journal of Science.

Mr. Kane, on the part of the appropriate Committee, announced that the Commemorative Discourse on the late President of the Society, would be ready for delivery in a few days.

On motion of the Librarian, he was authorized to distribute the remaining copies of the Eulogium delivered on Rittenhouse by Dr. Rush.

Stated Meeting, Dec. 6.

Present, thirty-three members.

Dr. Chapman, Vice-President, in the Chair.

Letters were announced and read:—

From Professor Bujalsky, of St. Petersburg, accompanying the donation of a work on astronomy:—and

From Professor A. D. Bache, superintendent of the survey of the coast of the United States, dated Washington, Nov. 1, 1844, accompanying the sheets of a Map of New York Bay and Harbour, presented by him to the Society.

The following donations were announced:—

FOR THE LIBRARY.

The Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. VIII. Part 1. Whole number, XV. 8vo.—*From the Society.*

Journal Asiatique. Quatrième Série. Tome IV. Nos. 16, 17. Juillet, Août, 1844. 8vo.—*From the Asiatic Society of Paris.*

Map of New York Bay and Harbour, and the Environs. Founded upon a Trigonometrical Survey, under the direction of F. R. Hassler, Superintendent of the Survey of the Coast of the United States. Triangulation by James Ferguson and Edmund Blunt, Assistants. The Hydrography under the direction of Thomas R. Gedney, Lieut. U. S. Navy. The Topography by C. Renard and J. A. Jenkins, Assistants. Published in 1844, and presented under authority of an Act of Congress of the United States of June 3d, 1844, and by direction of the Treasury Department. A. D. Bache, Superintendent of the Coast Survey. In four Sheets.—*From the Treasury Department, through Prof. A. D. Bache.*

Proceedings of the Academy of Natural Sciences of Philadelphia.

Vol. II. September, October, 1844. No. 5. 8vo.—*From the Academy.*

Quarterly Summary of the Transactions of the College of Physicians of Philadelphia. November, December, 1842, and January, 1843. No. 5. 8vo.—*From the College.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. VIII. October, November, 1844. Nos. 4 and 5. 8vo.—*From Dr. Patterson.*

The African Repository and Colonial Journal. Vol. XX. No. 11. November, 1844. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. II. December, 1844. No. 24. 8vo.—*From Lea & Blanchard.*

The Zoologist: a popular Monthly Magazine of Natural History. Nos. XXI. and XXII. September, October, 1844. 8vo.—*From Edward Newman, Esq., Editor.*

The Electrical Magazine. Conducted by Charles V. Walker, Esq. Vol. I. No. 6. October, 1844. 8vo.—*From the Editor.*

L'Anatomie Génerale et Abrégée du Corps Humain. Nouvelle Édition. Par M. Bujalsky. In the Russian Language. St. Petersburg, 1844. 8vo.—*From the Author.*

Descriptio Anatomico-pathologica gemellarum sibi invicem coalitarum, in quibus duo corda pariter inter se concreta, constituebant atrium et ventriculum unicum, cum debito tamen duobus cordibus vasorum majorum numero. By M. Bujalsky. St. Petersburg, 1832. Pamphlet.—*From the Author.*

Two other Pamphlets on subjects of Anatomy and Surgery. In Russian.—*From the same.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XIX. Nos. 10, 11, 12, 13. September, 1844. 4to.

Astronomische Nachrichten. No. 514. September 5, 1844. 4to.

The Committee, consisting of Mr. Walker, Dr. Patterson, and Professor Kendall, on Professor Loomis' paper, read November 15, 1844, and entitled, "Astronomical Observations made at Hudson Observatory, lat. 41° 14′ 42.6″ north, and long. $5h\ 25m\ 39.5s$ west, third series," reported in favour of publication, which was ordered accordingly.

Prof. Loomis gives the latitude of the Hudson Observatory from 63 culminations of Polaris, with the meridian circle,

$41° 14' 42''6$

The paper extends the series of moon culminations to the number of 259, and contains two occultations.

The longitude of Hudson Observatory, from Greenwich, by 150 corresponding moon culminations, is as follows:—

From 72 Greenwich observations,		$5h\ 25m\ 40.6s$
33 Cambridge, E.	„	39.2
18 Oxford	„	37.8
27 Edinburgh	„	39.4

Allowing double weight to the Greenwich observations, the mean result is,

$5h\ 25m\ 39.5s$

The observations of Encke's comet in 1842, of the great comet of 1843, of the first Mauvais comet, and of the Faye comet, are given in full, with the apparent place of the stars used for comparison. The Faye comet was followed by Prof. Loomis, till the 11th of February, 1844.

This paper concludes the series of Prof. Loomis' labours at Hudson, he having accepted the appointment of Professor in the New York University. The Hudson Observatory is now in the hands of Prof. James Nooney.

Mr. Lea read a paper, entitled "Supplementary Note on the Construction of different Forms of the Magic Cyclovolute, by E. Nulty," which was referred to a Committee, consisting of Dr. Patterson, Mr. E. Morris, and Professor Kendall.

Dr. Patterson called the attention of the Society to a paper read before the Philosophical Society on the 14th of January, 1768, by Provost Ewing, prior to the union of the two societies from which this Society was formed. This paper, which has never been published, contains a general theory of magic squares, with its application. It was referred for examination to the same Committee.

Dr. Dunglison, at the request of Dr. Meigs, who was absent, read a paper, entitled "Case of Spina Bifida, by Henry Bond, M.D.," which was referred to a Committee consisting of Dr. Meigs, Dr. Dunglison, and Dr. Hays. Dr. Dunglison prefaced the reading of the paper by some remarks on the nature and

mode of production of these and similar arrests of development.

Professor Frazer read a letter from Mr. J. B. Maxwell, one of the trustees of Princeton College, to Professor Henry, dated Belvidere, Oct. 17, 1844, relating to the discovery of Mastodon bones on the farm of Mr. Abraham Ayers, near Hackettstown, New Jersey.

There are portions of the skeletons of five Mastodons—one pretty large—three of smaller size, and a calf: of the largest, only the grinders—portions of the tusks (13½ inches in circumference,) and some fragments of the larger bones remain—the rest having fallen to pieces on being exposed to the air. The bones of the calf fell to pieces in like manner, and no parts have been preserved except the grinders and the tusks, which were five or six inches long, about three-quarters of an inch in diameter, and seem to have projected more than an inch from the bone. Of the other three, the skulls and most of the larger bones are in good preservation. We measured some parts of the largest of them, as follows :—

Skull—from top of head at junction of the muscles of the neck to end of bone between the tusks—3 feet 4 inches.

„ Between the large cavities for the ears across the forehead—2 feet.

„ Orbit of the eye—vertical diameter, 6 inches.

„ Reniform orifice below the eyes, (communication between trunk and brain, &c.) 10 inches across by 4 inches vertically.

„ Oval orifice below this, (communication between trunk and throat,) 5½ inches vertically by 3 across.

„ Tusk, from insertion, 2 feet 3 inches—whole length 3 feet 1 inch, and about 3 inches in diameter.

Pelvis, 4 feet 10 inches across, by 3 feet 8 inches.

Femoral bone, 3 feet long, 1 foot 1½ inch in circumference in the middle.

Scapula, 2 feet 5 inches long, 2 feet 1 inch wide—measuring over the projection.

There were three grinders on each side above, and the same number below. The two others and the calf had four teeth on each side, both above and below, but the forward ones were evidently "milk teeth," which would have been shed at a more advanced age. In

none of these four did the back grinders appear to have cut through the gum. The largest of the five had had three grinders on each side in each jaw. All the grinders were of the same character, having the projecting conical points which distinguish the Mastodon. In one of the skulls, the tusks projected outwards and inclined upwards, while in the other two they were inclined downwards and nearly parallel. This difference, and that in the number of the teeth had induced Mr. Ayers to believe that the remains belonged to more than one species. But Mr. Maxwell considered it to be evident that the only differences are those of age and sex. The bones which he measured, he supposed to be those of a female. The other two were younger animals, as was evident both from the teeth and the sutures of the skull, and as the skull with projecting tusks seemed to have a broader and rounder outline than the others, it probably belonged to a young male.

Mr. Ayers walked with Mr. Maxwell to the spot where they were dug out, and described the position in which they were discovered. North-west of the Musconetcong Valley, in which Hackettstown is situate, lies a range of highlands about two miles wide, rising perhaps 350 feet above the valley, and separating it from the valley of the Pequest. This ridge, which is of gneiss, and has, like all our mountains, a general course of about north-east, is cut into sections by transverse depressions, or hollows running generally about south of east. Through one of these depressions, which is probably 150 feet below the general level of the range, passes the road from Hackettstown to Vienna. By looking at Gordon's Map of New Jersey, a small stream is found to cross the road nearly half way to Vienna. Mr. Ayers' house is about 100 yards beyond the stream, and the bones were found more than a quarter of a mile beyond his house in a northerly direction, and perhaps 300 yards from the road. The Map does not represent the face of the country correctly. The road runs along the northern side of the valley or depression, most of which is occupied by a swampy meadow, through which the stream flows. From the road the ground rises regularly, but pretty rapidly, probably 120 feet in 200 yards, and then descends more gradually 25 or 30 feet into a smaller depression, which, however, does not cut through the ridge like the larger one, but descends very gradually from the general level on the east, and at its western end opens on the brow of the ridge by a kind of ravine. Near this western end is a depression or basin deeper than the outlet, and forming in wet weather a pond-hole. Mr. Ayers says, that formerly the water in it

was at times four or five feet deep, but some years ago he drained it in part by a ditch four feet deep, so that now it is merely a wet swampy place, about forty yards in length by twenty-five wide. During the drought last summer it became quite dry, and he took the opportunity to dig out a portion of the earth for manure. In doing this he discovered the bones. The basin slopes gradually from the east to a depth of about twelve feet near the western side. On the top is about one foot of vegetable deposite formed of decayed leaves, &c., then about six inches of whitish sand mixed with vegetable matter, and below this a deposite, which Mr. Ayers says, when first opened, was of a yellowish colour, very much resembling in appearance the manure of a cow yard when thrown up in heaps in the winter, and had a very strong smell of the same kind. Exposure to the weather has changed its colour to the dull, bluish black of swamp earth, which it seems to be mixed with, great quantities of vegetable remains, principally of marsh plants, with scattered fragments of branches of trees, &c. In this deposite the remains were found covered from four to six feet deep, except the largest, which lay near the south-east side of the basin, and were but slightly covered. A few feet to the north of this lay the next in size on its back, and a little to the north and west of this the other two, both as if in a standing position, and the calf was found in a similar position near the north side of the basin. From Mr. Ayers' description, the bones of the largest one must have been disturbed after its death, as the tusks were found reversed alongside of the neck. Between the ribs of two or three of them, was a considerable quantity of what Mr. Ayers describes as resembling coarse chopped straw, mixed with fragments of sticks,—no doubt the contents of the stomach.

Not more than one-fourth of the basin has been examined. The openings in it have been made at random, and in each an animal has been found, so that there is probably a number more. "The question," says Mr. Maxwell, "very naturally occurs, how and when did so many of these huge animals become imbedded in this narrow space? Questions more easily asked than answered. My first conjecture before seeing the place, was that they had been mired in attempting to reach a spring or lick; but the small extent and shallowness of the basin, and the gradual descent and character of its bottom, (which as far as has been examined, is perfectly solid and like much of the ground around, closely paved with rolled stones of gneiss and limestone, generally 6 or 8 inches in diameter,) all forbid such a supposition. It is possible that they may have been swept there by a deluge,

which, from the configuration of the surrounding country, would, as it subsided, sweep through the larger depression, with a current to the east, and form an eddy through this one to the west. The whole depression has, in form, a close resemblance to such as we see formed on a smaller scale in the sand along the Delaware. But on the other hand, the number found together, most of them in a standing position, would seem rather to indicate that they had been overwhelmed in one of their native haunts, by some sudden catastrophe; and some circumstances seem to favour the supposition that this could not have been at a very remote period. This little basin receives the drainage of some fifteen acres of land, and seems to have had a considerable growth of grass and marsh plants around it. Under such circumstances, it would seem that the accumulation of vegetable matter indicates no very great antiquity. The holes were so filled with water that I could not ascertain whether the deposite below the sand showed any thing like stratification, but as far as I could judge from what was thrown out, its character was pretty uniform throughout, exhibiting the appearance of a marsh, much frequented by animals, which had trampled fragments of its plants all through it. I regretted very much that my knowledge was not sufficient to determine the species of the plants of which so many portions remain, but I thought I recognised some which are now growing in the neighbouring marshes, such as flags, cattails, &c. I hope, however, that you or some of your scientific friends, will visit the place, and obtain more accurate information than I am competent to give."

Mr. S. Roberts drew the attention of the Society to a steamboat now lying in the Delaware, intended to navigate canals, and gave a description of it and its machinery.

The steam canal boat "John Gilpin" belongs to New York, and has made three trips, within a short time, to St. John's, in Canada, having passed through the Champlain canal. Her length is eighty feet, and her extreme breadth thirteen feet four inches. When drawing three feet water, she carries forty-five tons; and with four and a half feet water, sixty-five tons.

Her steam engine is in the bow, and is of twenty horse power, having a locomotive or tubular boiler, and burning anthracite coal. The diameter of the cylinder is sixteen inches, and the length of the stroke twenty-eight inches.

The boat is propelled by two paddle wheels of wrought iron, one

on each side of the bow, and enclosed within the line of the sides of the boat. Each wheel is seven and a half feet in diameter, and two feet wide, and the paddles are of sheet iron, and inclined at an angle of about forty degrees, so as to throw the water out from the sides of the boat; the wheels revolving in planes parallel to the keel. This arrangement is peculiar, and is stated to work exceedingly well in navigating canals. It is contrived by Mr. Asa Worthington, of New York. The boat can propel herself ten miles an hour in open water; and she towed three barges from New York, bringing them through the Delaware and Raritan Canal at the rate of nearly four miles an hour. The boat is new, and her whole cost has been $5500, the hull being of wood.

The foregoing information was obtained on board the boat, from her owner, Captain J. W. Low.

The distance from St. John's, in Canada, to Philadelphia, is nearly five hundred miles; and the Champlain Canal being now frozen, the boat is going southward to the Dismal Swamp Canal, to ply there during the winter. She is said not to injure the banks more than an ordinary packet boat.

The interest felt on the subject of steam traction on canals, both in this country and in England, makes the boat well worthy of examination, especially in reference to her small size in combination with her great power for towing heavy tonnage. She could readily pass through the Pennsylvania Canal.

The observations of Mr. Roberts gave occasion to remarks from Messrs. Cresson, Baldwin, Frazer, E. Morris, and A. D. Bache, on the peculiar construction of the water-wheels of this boat, the paddles being inclined to the direction of the motion of the vessel, whilst the plane of revolution of the wheel was in that direction,—and on the theory of the position of the paddle wheel, the proper position of the wheels or propellers of a canal boat, and other points.

The Treasurer, Mr. Ord, presented his accounts for the year as required by the laws of the Society, which were referred to the Committee of Finance.

Mr. Lea, from the Committee of Publication, in conformity with the laws, laid their accounts for the year before the Society. The balance of funds in the hands of the Committee is three hundred and eighty-five dollars and sixty-four cents.

The Librarian, Mr. Ord, reported that he had surrendered to Mr. F. Blake, applying on behalf of the family of Captain Rogers, the log-book of the steam-ship Savannah, which had been deposited with the Society by the late Vice President Hopkinson, on the 3d of April, 1840.

On motion of Mr. Walker, a Committee was appointed to make and collect observations on the solar eclipse of Dec. 9. The Committee appointed were Mr. Walker, Dr. Patterson, Prof. A. D. Bache, Prof. Kendall, Mr. R. T. Paine, Prof. Alexander, Prof. Frazer, Prof. Bartlett, Mr. Lukens, Prof. Loomis, Prof. Norton, Prof. Locke, Mr. Gummere, Mr. Chas. J. Wistar, Prof. Courtenay, Prof. Cresson, Prof. Peirce, Mr. Borden, Mr. Downes, and Mr. Charles M'Euen.

Stated Meeting, Dec. 20.

Present, thirty-nine members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were announced and read:—

From the Academy of Natural Sciences of Philadelphia, dated Philadelphia, Dec. 9, 1844, acknowledging the receipt of a copy of Dr. Dunglison's discourse on the late President of the Society:—and,

From Mr. Dudley Leavitt, dated Meredith, November, 1844, accompanying tables of the moon's rising and setting.

Professor Perry, of the United States' Navy, member of the Maryland Academy of Sciences, was introduced by Mr. Walker, and took his seat.

The following donations were announced:—

FOR THE LIBRARY.

The Twenty-eighth Report of the Directors of the American Asylum, at Hartford, for the Education and Instruction of the Deaf and Dumb. Exhibited to the Asylum, May 11, 1844. Hartford, 1844. 8vo.—*From the Directors.*

An Introductory Lecture to the Course of Institutes of Medicine, &c.,

in Jefferson Medical College. Delivered Nov. 4, 1844. By Professor Dunglison. 8vo.—*From the Author.*

Introductory Lecture to the Course of Chemistry, delivered in Jefferson Medical College, Nov. 3, 1841. By Franklin Bache, M.D. 8vo.—*From the Author.*

Introductory Lecture to the Course of Chemistry in Jefferson Medical College. Delivered Nov. 6, 1843. By Franklin Bache, M.D. 8vo.—*From the same.*

Introductory Lecture to the Course of Chemistry, delivered in Jefferson Medical College, Nov. 1844. By Franklin Bache, M.D. 8vo.—*From the same.*

An Inquiry into the Distinctive Characteristics of the Aboriginal Race of America. By Samuel George Morton, M.D. Second Edition, 1844. 8vo.—*From the Author.*

A Memoir of William Maclure, Esq. By Samuel George Morton, M.D. Second Edition, 1844. 8vo.—*From the same.*

On a supposed New Species of Hippopotamus. By S. G. Morton, M.D. From the Proceedings of the Academy of Natural Sciences of Philadelphia, for February, 1844.—*From the same.*

The Committee, consisting of Dr. Meigs, Dr. Dunglison, and Dr Hays, on the paper of Dr. Bond, entitled, "Case of Spina Bifida," read at the last meeting of the Society, presented a report thereon, recommending that an abstract of the same be made by the Reporter, to be published in the Proceedings of the Society; which recommendation was agreed to.

The child was born at term, July 5, 1833; the mother aged 40 years. The pregnancy went several days beyond the reckoning.

Upon washing the child, a spot as large as a half cent, looking like a coagulum, but covered with a thin film of membrane, was discovered at the lower end of the lumbar spine. It was destitute of the common integument, and was not raised above the surface. The spinous processes on the sacrum were absent; those of the lumbar vertebræ were present.

On the third day, the tumour was as large as a walnut, and continued steadily to increase in size, until it opened on the 27th of August, fifty-three days after the birth of the child. Although, for the first few weeks, the tumour exhibited a low and suppurating surface, yet it afterwards became covered with a tense, glossy, heated surface,

except at three distinct points, through one of which the contents were discharged.

Dr. Bond's note of the case is accompanied with drawings representing the tumour as to colour, size, vascularity and situation. The sac filled and burst repeatedly,—the fluid discharged becoming, at each successive opening, more and more turbid, and lastly puriform; while the sac acquired after each opening, an increased thickness and consistency. In the first six weeks, the health of the infant suffered but little; but at length it began to be emaciated, and to be much distressed, but was greatly relieved of uneasiness after each discharge. It died on the 69th day.

The third drawing, by Drayton, exhibits the tumour and the spine dissected. The lower terminus of the spinal cord was found within the sac; that is to say, it had passed out of the spinal canal, and with its terminal nerves was enveloped in the thickened membranes and tissues of which the sac was composed—chiefly dura mater altered by inflammation.

Dr. Bond refers to two cases treated by Sir Astley Cooper. He was deterred from making punctures in the tumour in this case, and it is evident from the dissection, that such treatment would have been unavailing.

The Committee, consisting of Dr. Patterson, Mr. E. Morris, and Professor Kendall, on Mr. Nulty's communication, entitled "Supplementary Note on the Construction and Different Forms of the Magic Cyclovolute," as published in the Transactions of the Society, Vol. IV. 1835, recommended the publication of the same in the Transactions. Publication was ordered accordingly.

The particular arrangement there described, the author deduces in his present paper from a combination of elementary magic squares of peculiar forms, and shows that from different combinations of such squares, and with attention to every property involved in the original drawing, there may be constructed 768 magic cyclovolutes. A slight limitation with regard to secondary properties enables him to extend the number of arrangements to 6144; and these he further increases to 55296 different magic cyclovolutes, with all the general properties enumerated in his first paper.

In connexion with his subject, the author presents a *new* magical arrangement, analogous to that employed by Dr. Franklin in the construction of the magic circle; but which, including more extensive

properties, imparts to it further generality. He finds 1536 magic circles with his own additional improvement here implied; 7680 of Dr. Franklin's limited construction; and finally 55296 magic circles, with further limitation, including, however, the chief property of the *sixteen* radii, and all the properties assigned to the *twenty-eight* principal and secondary rings of the magic circle.

The principles on which are founded the preceding results, the author judges of moment in respect to the magical combination of numbers; and mentions, as an instance, their immediate application to the extensive series of 256 numbers 1, 2, 3—256, first magically combined by Dr. Franklin, and afterwards by Mr. Dalby, professor in the Royal Military College, as cited by Dr. Hutton. For the purpose of comparison and remark on this subject, a *new* perfect magic square is given. It embraces the preceding series, and is capable of being made the basis of an enlarged magic cyclovolute. A corresponding arrangement is alluded to in case of a generalized magic circle, the number and varieties of which, as well as those of a magic cyclovolute, however extensive, the author conceives to be within the design and general scope of his solution.

Mr. Walker, from the Committee on the Solar Eclipse appointed at the last meeting, reported progress, and stated, that he had received letters from Professor Pierce of Harvard University, Professor Loomis of the New York University, and Professor Barnard of the University of Alabama, containing the observations on the eclipse made by those gentlemen.

A paper, containing Tables of the Moon's rising and setting, by Mr. Dudley Leavitt, was read by the Secretary, and referred to a Committee, consisting of Mr. Walker, Dr. Patterson, and Professor Kendall.

Mr. Justice stated, that glasses of immense magnitude for telescopes were now fabricated at Paris,—a circumstance on which doubt had existed in the minds of members when it was first mentioned at the meeting of the Society of the sixteenth of August. He also referred to interesting observations on the Moon's surface, made with the telescope of Lord Rosse, and with the refractor at the High School observatory of this city;—the latter distinctly exhibiting the same appearances as had been observed with the former.

A communication was read from Mr. J. P. B. Maxwell,

containing additional information in regard to the Mastodon bones, on which a communication from him was read at the last meeting.

In the description of the bones communicated to the Society at that time, Mr. Maxwell omitted to mention one circumstance, which struck him as peculiar. The back grinders, which had not yet cut through, were placed so far back, that they could be of no use to the animal in that position, and it appeared evident, that only two grinders could be in use at the same time, and that as the forward ones were worn out they would be shed, and their place supplied by those behind pushing forward;—a beautiful provision—Mr. Maxwell conceives—for an animal of long life subsisting upon hard substances.

Professor Henry, of Princeton, made an oral communication in regard to some speculations in which he had indulged, relative to the classification and origin of mechanical power.

He stated, that he was indebted for the origin of this train of thought to some remarks made by Mr. Babbage in his work on the economy of machinery, and to the late researches of the German and French chemists on the subject of vital chemistry; indeed, all the views contained in the communication, might perhaps be found in detached portions in different works; but he believed, that they had never before been brought together and presented as a whole.

He defined mechanical power to be that which is capable of overcoming a constant resistance, and of producing a continued motion; or, in the language of the engineer, it is that which can be employed to "do work." It is here used in a more restricted sense than force, which is applied, as a more general term, to whatever tends to produce or resist motion. The following list of mechanical powers, he believed, would be found to include all the prime movers employed at the present time, either directly or indirectly, in producing mechanical changes in matter, and all these could be referred to two sources:—

Class 1st.	Water power, Tide power, Wind power,	Referable to celestial disturbance.
Class 2d.	Steam and other powers developed by combustion. Animal power.	Referable to that which is called vital action.

These natural motive principles are not always directly employed in producing work, but are sometimes used to develope other power, by disturbing the natural equilibrium of other forces, and in this way, they give rise to a class of mechanical movers, which may be called intermediate powers. It will be evident on a little reflection, that the forces of gravity, cohesion, and chemical attraction, with those of the imponderable agents of nature, so far as they belong to the earth, all tend to produce a state of stable or permanent equilibrium at the surface of our planet,—that in all cases, before the energies of these forces can be exhibited, the disturbing effect of some extraneous force is required,—hence these principles in themselves are not the primary sources of power, but are merely secondary agents in producing mechanical effects;—or, in other words, it will be found, that while the approximate source of every power is the force exerted by matter, in its passage from an unstable to a stable state of equilibrium, yet, in all cases, it may be referred beyond this to a force which disturbed a previously existing quiescence. As an example, we may take the case of water power, in which the mechanical effects are approximately due to the return of the water to a state of stable equilibrium on the surface of the ocean; but the cause of the continued motion is the force which produced the original disturbance, and which elevates the liquid in the form of vapour. Also, in the phenomena of combustion, the immediate source of the power, evolved in the form of heat, is the passage from an unstable state into one of stable combination of the carbon and hydrogen of the fuel, and the oxygen of the atmosphere; but this power may ultimately be resolved into the force which caused the separation of these elements from their previous combination in the state of carbonic acid and water.

Now the only forces of any importance, which operate at the surface of the earth to counteract the tendency to a general state of stable equilibrium are those derived from two sources, namely, *celestial disturbance*, and what is called *vital action;* and hence all mechanical power, as well as all activity on the surface of the globe, may be referred to these two sources. The only exception to this general regulation is the comparatively limited effect of volcanic action, which is a power, from whatever source it may be derived, that must tend to exhaust itself.

Thus far the author considered his conclusions founded on well established physical laws; and perhaps here the true spirit of inductive philosophy would admonish him to stop: but they who are disposed to continue the speculation, and to consider the results of

the late researches of the German and French chemists as well established truths, may extend the generalization so as to reduce all mechanical motion on the surface of the earth to a source from without. Thus, according to Liebig, Dumas and Boussingault, the mechanical power exerted by animals is due to the passage of organized matter in the body from an unstable to a stable equilibrium; and as this matter is derived in an unstable state from vegetables, and the elements of these again from the atmosphere, it would therefore appear to follow, that animal power is referable to the same sources as that from the combustion of fuel, namely, the original force which separates the elements of the plants from their stable and original combination with the oxygen of the atmosphere. But what is this power which furnishes the plant with the material of its growth? Is it due to a constantly created vital power; or, since its effects are never directly exhibited but in the presence of light, may not the opinion of many chemists of the present day be adopted, namely, that it is due to the decomposing energy of the sun's rays, which are found to exhibit a wonderful decomposing effect in cases where no vital phenomena are present.

If this hypothesis be adopted, it must be supposed, that vitality is that mysterious principle which propagates a form and arranges the atoms of organizable matter, while the power with which it operates, as well as that developed by the burning fuel and the moving animal, is a separate force, derived from the divellent power of the sunbeam. It is true, that this is as yet little more than a mere hypothesis, and as such forms no part of positive science, but it appears to be founded on a clear physical analogy, and may therefore form the basis of definite philosophical research.

The remarks of Professor Henry gave rise to a discussion in which Dr. Hare, Professor Henry and Dr. Meigs participated.

Dr. Meigs animadverted on some observations of M. Colombat de l'Isère on diseases of the Clitoris, and detailed a case of excessive enlargement of the organ.

The clitoris was injured by a fall fourteen years ago; since which time it has been constantly increasing in size. The patient was married eight years since, and has two children. The tumour was indolent, and pendulous from the front of the os pubis; and consisted of skin and genito-urinary mucous tissue. It formed a close-sac, filled with a fluctuating mass. Dr. George Norris, sur-

geon of the Pennsylvania Hospital, opened the sac by plunging a lancet into the most dependent portion. Twenty-two ounces of dark red viscous fluid escaped, consisting of blood perfectly inodorous, and which had undergone no other alteration than that which takes place in imperforate uterus or vagina. The fluid resembled precisely that which Dr. Meigs has seen discharged in cases of atresia vaginæ. As soon as the liquid was withdrawn, the sac shrunk like a scrotum. No inflammation nor other inconvenience followed the operation, which was done in May, 1844. In November, 1844, the sac was refilling, and contained about eight ounces of fluid.

Dr. Meigs regarded the case as interesting on account of the perfect resemblance of the contained fluid to that which is occasionally preserved for months, and even for years, within the uterus, or within some part of the reproductive organs. He does not suppose that blood could be preserved for so many years within a living tissue composed of materials or substance divested of the qualities of that which composes the apparatus of reproduction. If this opinion be well founded, the case—he conceives—may serve to shed an additional gleam of light on the differential powers and qualities of the tissues whose consideration constitutes the subject of general anatomy.

Col. Biddle, on the part of the Committee of Finance, reported a recommendation of the following appropriations for the ensuing year, which were agreed to:—

Proceedings, ...	$300
Binding, ...	200
Hall, ...	100
Journals, ...	200
General Account, ...	700
	1500

He further read a statement prepared by the Treasurer, exhibiting the character of the expenditures made by the Society for some years past, and the nature and extent of its resources.

Mr. Walker requested the loan of the large lens belonging to the Society by the High School Observatory; which was agreed to by the Society,—the Curators being instructed to effect the same.

Dr. Hare presented certain resolutions in regard to the election of officers of the Society, and moved that they be printed; when, on motion of Mr. Kane, they were laid on the table.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JANUARY—APRIL, 1845. No. 32.

Stated Meeting, January 3.

Present, thirty-seven members.

Dr. FRANKLIN BACHE, Vice-President, in the Chair.

Prof. S. S. Haldeman, a member elect, was presented and took his seat.

The judges and clerks of the annual election held this day, reported the appointment of the following officers:—

President.

Robert M. Patterson, M.D.

Vice-Presidents.

Nathaniel Chapman, M.D.,
Franklin Bache, M.D.,
Alexander Dallas Bache, LL.D.

Secretaries.

J. K. Kane,
Robley Dunglison, M.D.,
John F. Frazer,
Alfred Langdon Elwyn, M.D.

Counsellors for Three Years.

Clement C. Biddle, LL.D.,
William Short,
Joseph Henry, LL.D.,
Benjamin Dorr, LL.D.

Curators.

Isaac Hays, M.D.,
Franklin Peale,
John P. Wetherill.

Treasurer.

George Ord.

Letters were received and read:—

From the Zoological Society of London, dated December, 1843, and 30th July, 1844:—

From the Society of Antiquaries, London, dated 22d November, 1844, acknowledging the receipt of donations from the Society:—

From Prof. Bartlett, dated West Point, 19th December, 1844, on the subject of observations of the late eclipse:—and,

From Prof. Reinwardt, of Leyden University, dated October, 1844, announcing a donation to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Zoological Society of London. Vol. III. Parts 2 and 3. 1843, 1844. 4to.—*From the Society.*

Proceedings of the Zoological Society of London. Nos. 120 to 130, inclusive. 8vo.—*From the same.*

Reports of the Council and Auditors of the Zoological Society of London, read at the Annual General Meeting, April 29, 1844. 8vo.—*From the same.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. VIII. No. 6. December, 1844. 8vo.—*From Dr. R. M. Patterson.*

The African Repository and Colonial Journal. Vol. XX. No. 12. December, 1844. 8vo.—*From the American Colonization Society.*

Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche overzeesche Bezittingen, door de Leden der Natuurkundige Commissie in Indië en andere Schrijvers. Uitgegeven op last Van den Koning door C. J. Temminck. Botanie. Geredigeerd door J. A. Susanna, Gedrukt door J. G. la Lau. Leiden, 1839—1842. Folio.—*From Professor C. G. C. Reinwardt.*

Twenty-fifth Congress, 3d Session; House of Representatives, Doc. 208. Twenty-eighth Congress, 2d Session; House of Representatives, Doc. 16.—*From the Hon. J. R. Ingersoll.*

The Medical News and Library. Vol. III. No. 25. January, 1845. 8vo.—*From Lea & Blanchard.*

The Hospitals and Surgeons of Paris. An Historical and Statistical Account of the Civil Hospitals of Paris; with miscellaneous information, and Biographical Notices of some of the most eminent

of the living Parisian Surgeons. By F. Campbell Stewart, M.D. Philadelphia, 1843. 8vo.—*From the Author.*

Memoir on the Radical Cure of Club-Foot. By H. Scoutetten, D.M.P. Translated from the French by F. Campbell Stewart, M.D. Philadelphia, 1840. 8vo.—*From the Translator.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 515 to 518, inclusive. 4to.

FOR THE CABINET.

Copy of a Persian Daric, now in the U. S. Mint.—*From George M. Justice.*

Dr. Dunglison presented No. 31, of the Proceedings, to December 20th, inclusive.

Dr. Hays presented his resignation of the office of Curator, to which he had been this day elected.

Stated Meeting, January 17.

Present, twenty-nine members.

Dr. BACHE, Vice-President, in the Chair.

Letters were received and read:—

From A. Dallas Bache, dated Washington, January 7th, 1845, acknowledging the receipt of notice of his election as Vice-President of the Society:—

From the Royal Academy of Sciences of Berlin, dated Berlin, 15th August, 1844, announcing a donation to the Library, and acknowledging the receipt of the Transactions of this Society:—

From the Batavian Society of Experimental Philosophers, dated Rotterdam, 25th October, 1844, announcing a donation to the Library:—

From Mrs. Anna Maria Thornton, dated Washington, 13th Nov. 1844, announcing a donation to the Library:—and,

From Dr. Robert M. Patterson, resigning the office of President of the Society, to which he had been elected.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1842. Berlin, 1844. 4to.—*From the Royal Academy of Sciences of Berlin.*

Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin. July to December, 1843, inclusive. January to June, 1844, inclusive. 8vo.—*From the same.*

Annales des Mines. Quatrième Série. Tome V. 2e Livraison de 1844. 8vo.—*From the Engineers of Mines, Paris.*

Nieuwe Verhandelingen van het Bataafsch Genootschap der Proefondervindelijke Wijsbegeerte te Rotterdam. Negende Deel. Eerste Stuk. Rotterdam, 1844. 4to.—*From the Batavian Society of Experimental Philosophy.*

Plan en Grondwetten van het Bataafsch Genootschap der Proefondervindelijke Wijsbegeerte te Rotterdam. 1843. 4to.—*From the same.*

Siebenter Bericht über das Museum Francisco-Carolinum. Nebst der vierten Lieferung der Beiträge zur Landeskunde von Oesterrich ob der Enns und Selzburg. Linz, 1843. 8vo.—*From the Rev. W. R. Rally.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. IX. No. 17. January, 1845. 8vo.—*From Dr. R. M. Patterson.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. New Series. Vol. IX. No. 17. January, 1845. 8vo.—*From the Editor.*

Recherches sur les Volcans éteints du Vivarais et du Velay; avec un Discours sur les Volcans brûlans, des Mémoires Analytiques sur les Schorls, la Zéolite, le Basalte, la Pouzzolane, les Laves et les différentes substances qui s'y trouvent engagées, etc. Par M. Faujas de Saint-Fond. Grenoble et Paris, 1778. Folio.—*From Mrs. Anna Maria Thornton.*

Annual Report of the Board of Canal Commissioners, for the Fiscal Year, ending November 30, 1844. 8vo.—*From C. B. Trego, Esq.*

Report of the State Treasurer, upon the Finances of Pennsylvania, to the Legislature of the State, at the Commencement of the Session of 1845.—*From the same.*

Report of the President and Managers of the Schuylkill Navigation Company, to the Stockholders. January 6, 1845. 8vo.—*From S. W. Roberts, Esq.*

Report to the Board of Managers of the Schuylkill Navigation Company, on the Improvement of the Schuylkill Navigation. By Solomon W. Roberts, Civil Engineer. Philadelphia, January 2, 1845. 8vo.—*From the Author.*

Mirror for Dyspeptics; from the Diary of a Landlord. By J. M. Sanderson, Franklin House. Philadelphia, 1844.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences. Tome XIX. Nos. 14 to 17, inclusive. 4to.

Tables des Comptes Rendus. Tome XVIII.

Dr. Chapman offered his resignation of the office of Vice-President of the Society.

Dr. Chapman announced the death of Granville Penn, Esq., a member of this Society, upon 28th September, 1844.

Mr. Job R. Tyson was appointed to prepare an obituary notice of Mr. Penn.

Major James D. Graham read a continuation of a paper, entitled "Some Observations made upon the Dip of the Magnetic Needle, at a number of Stations between the City of Washington and the extreme North-east and North Frontiers of Maine, in 1841, 1843, and 1844:" which was referred to a Committee, consisting of Prof. Frazer, Prof. Bache, Prof. Kendall.

Prof. S. S. Haldeman read a paper, upon the History of the Coleoptera Longicornia of the United States, which was referred to a Committee, consisting of Mr. T. R. Peale, Mr. Lea, and Mr. Ord.

Mr. George Ord was reëlected Librarian.

The following standing Committees were appointed for the year:—

Of Finance.—Mr. C. C. Biddle, Mr. Lea, Dr. Patterson.

Of Publication.—Mr. Lea, Dr. Hays, Mr. J. Francis Fisher.

On the Hall.—Mr. Campbell, Mr. Fraley, Mr. Kane.

On the Library.—Dr. Hays, Mr. Campbell, Mr. Pennington.

The resignations of Dr. Patterson, as President, Dr. Chapman, as Vice-President, and Dr. Hays, as Curator, were accepted by the Society.

The following gentlemen were elected Members of the Society:—

Charles Frederick Beck, M.D. of Philadelphia.
Richard Owen, F. R. S., of London.
Sir James Clark, Bart. M.D. of London.
Prince Maximilien, of Wied.
James Copland, M.D. of London.
Major William Tell Poussin, of Paris.
Professor J. A. Alexander, of Princeton.
Frederick Von Raumer, of Berlin.

Stated Meeting, February 7.

Present, forty-six members.

Dr. Bache, Vice-President, in the Chair.

Dr. Charles Frederick Beck, a newly elected member, appeared and took his seat.

Letters were received and read:—

From Dr. Charles Frederick Beck, dated January 24, 1845, and from Professor Joseph A. Alexander, Princeton, dated January 25, 1845, respectively acknowledging the receipt of notice of their election as members:—

From the Linnæan Society of London, dated London, 8th November, 1844:—From the Statistical Society of London, dated London, 1st August, 1844:—From the Zoological Society of London, dated London, 7th November, 1844:—From the Connecticut Historical Society, dated Hartford, 20th January, 1845:—From the New York Historical Society, dated New York, 10th December, 1844:—From the Academy of Natural Sciences of Philadelphia, dated Philadelphia, 21st January, 1845, announcing the receipt of the Proceedings and Transactions of this Society:—

From the Honorary Secretary of the Ethnological Society of London, dated London, 13th November, 1844, forwarding Vol. I. and part 1. Vol. II. of the Journal of the Society:—and

From Mr. Eli K. Price, dated Philadelphia, 28th January, 1845, on business connected with the will of the late Nathan Dunn.

The following donations were announced:—

FOR THE LIBRARY.

Mémoires de l'Académie Impériale des Sciences de Saint Pétersbourg. VIme Série. Sciences Mathématiques, Physiques et Naturelles. Tome Cinquième. Première Partie: Sciences Mathématiques et Physiques. Tome Troisième. 4me, 5me, et 6me Livraisons. Tome Quatrième, 1ère Livraison. Saint Pétersbourg, 1844. 4to.—*From the Imperial Academy of St. Petersburg.*

Mémoires de l'Académie Impériale des Sciences de Saint Pétersbourg. VIme Série. Sciences Politiques, Histoire, Philologie. Tome Sixième, 4me, 5me et 6me Livraisons. Tome Septième, 1ère, 2de et 3me Livraisons. Saint Pétersbourg, 1844. 4to.—*From the same.*

Recueil des Actes de la Séance Publique de l'Académie Imperiàle des Sciences de Saint Pétersbourg, tenue le 29 Décembre, 1843. 4to. *From the same.*

The Transactions of the Linnæan Society of London. Vol. XIX. Part the Third. London, 1844. 4to.—*From the Linnæan Society.*

Proceedings of the Linnæan Society of London. Nos. 19 to 22, inclusive. 8vo.—*From the same.*

List of the Linnæan Society of London. 1844. 4to.—*From the same.*

Journal of the Ethnological Society of London. Vol. I. Parts 1 and 2. 8vo.—*From the Ethnological Society.*

The Regulations and List of Members of the Ethnological Society of London. 1843 and 1844. 8vo.—*From the same.*

Report of the Council of the Ethnological Society of London. 1844. 8vo.—*From the same.*

Address to the Ethnological Society of London, delivered at the Anniversary Meeting, on the 25th of May, 1844. By Richard King, M.D., Secretary. London, 1844. 8vo.—*From the same.*

Twenty-fourth Report of the Council of the Leeds Philosophical and Literary Society, at the close of the Session, 1843–44. 8vo.—*From the Society.*

Astronomical Observations made at the Radcliffe Observatory, Oxford, in the Year 1842. By Manuel J. Johnson, M.A., Radcliffe Observer. Vol. III. Oxford, 1844. 8vo.—*From the Radcliffe Trustees.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. No. 6. November, December, 1844. 8vo.—*From the Academy.*

Eighth Annual Catalogue of the Medical Institute of Louisville. Session, 1844–45, and Circular for the ensuing Session. Louisville, (Ky.) 1845. 8vo.—*Donor unknown.*

The African Repository and Colonial Journal. Vol. XXI. January, 1845. No. 1. 8vo.—*From the American Colonization Society.*

The American Journal of Science and Arts. Conducted by Professor Silliman and Benjamin Silliman, Jun. Vol. XLVIII. No. 1. January, 1845. 8vo.—*From the Editors.*

The Zoologist: a Popular Monthly Magazine of Natural History. No. XXIII. November, 1844. London. 8vo.—*From Edward Newman, Esq., Editor.*

The Phytologist: a Botanical Journal. No. XLII. November, 1844. London. 8vo.—*From the same.*

The British Almanac of the Society for the Diffusion of Useful Knowledge. For the Year of our Lord 1845. London. 12mo. *From Petty Vaughan, Esq.*

Report on the Meteorology of Toronto. By Lieut. Col. Edward Sabine, R. A., F.R.S. From the Report of the British Association for the Advancement of Science, for 1844. 8vo.—*From Lieut. Col. Sabine.*

Annual Report of the Trustees of the State Library, State of New York, Senate, No. 10.—*From the Trustees.*

Annual Report of the Auditor General, for the Fiscal Year ending November 30, 1844. Harrisburg, 1845. 8vo.—*From C. B. Trego, Esq.*

Twenty-eighth Congress—2d Session, (Senate) Document, No. 16. Report of the Secretary, communicating a Report of the Superintendent of the Survey of the Coast, showing the progress of the work during the year ending November, 1844.—*From Professor A. D. Bache.*

Annual Oration delivered before the Philadelphia Medical Society, by appointment, at the opening of its Session of 1844–5. By D. Francis Condie, M.D. Philadelphia, 1845. 8vo.—*From the Author.*

The Medical News and Library. Vol. III. February, 1845. No. 26. 8vo.—*From Lea & Blanchard.*

American Quarterly Journal of Agriculture and Science. Conducted by Dr. E. Emmons and Dr. A. J. Prime. Vol. I. No. 1. January, February, March, 1845. Albany, 1845. 8vo.—*From the Editors.*

Medical Topography of Brazil and Uruguay: with Incidental Remarks. By G. R. B. Horner, M.D., Surgeon U. S. Navy. Philadelphia, 1845. 8vo.—*From the Author.*

Act of Incorporation of the Northern Liberties Gas Works; with the Annual Reports of the Trustees to the Board of Commissioners of the Incorporated District of the Northern Liberties. 1844. 8vo.—*From Dr. Hays.*

Report of the Board of Managers of the Lehigh Coal and Navigation Company to the Stockholders, January 13, 1845. 8vo.—*From the Managers.*

An Introductory Lecture on the Means of Promoting the Intellectual Improvement of the Students and Physicians of the Valley of the Mississippi, delivered in the Medical Institute of Louisville, November 4, 1844. By Daniel Drake, M.D. Louisville, Ky., 1844. 8vo.—*Donor unknown.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten, Nos. 519, 520, 521. 4to.

Professor Hart, on the part of Mr. Walker, read to the Society two letters from Professor Schumacher, in relation to the medal offered by the King of Denmark, for the discovery of a new comet.

Dr. Patterson drew the attention of the Society to the first report of Professor Bache, Superintendent of the Coast Survey, and referred to the part which the Philosophical Society had taken in that great work; citing some of the important results attained by Professor Bache.

The remarks of Dr. Patterson gave occasion to observations from Mr. Justice and Professor Frazer, both gentlemen refer-

red to the accuracy with which the late Mr. Hassler had executed the work whilst under his superintendence.

The list of the surviving members of the Society, upon the 1st January last, was read, from which it appeared that the number was 351; of whom 244 are resident in the United States, and 107 in foreign countries. The deaths reported in 1844 are 12.

Dr. Elwyn announced the death of M. Jules de Wallenstein, late Russian Consul at Rio Janeiro, and a member of this Society.

Mr. Ord stated that Dr. Griffith had made an index to Ferussac's great work on molluscous animals;—and on motion, the thanks of the Society were directed to be presented to Dr. Griffith, for having prepared the same.

On motion of Mr. Kane, it was resolved, that the whole subject, referred to in the letter of Mr. Price read this evening, be referred to the Commitee of Finance, in connexion with the Treasurer, with power to take order.

Special Meeting, February 14.

Present, twenty-six members.

Dr. Bache, Vice-President, in the Chair.

The Presiding Officer stated that he had called the Special Meeting in consequence of a Communication, addressed to him as Vice-President, by a Committee of the Athenæum, and proposing to this Society to join with the Athenæum in erecting a new building, to accommodate both Societies, upon the lot occupied by the present building.

A Committee of Five were appointed to meet the Committee of the Athenæum, and confer with them on the proposition contained in their letter, and to report hereafter to the Society the result of such conference.

The Committee are Dr. Patterson, Mr. Ord, Mr. Smith, Mr. Lea, and Mr. Justice.

Stated Meeting, February 21.

Present, thirty-one members.

Dr. Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Institute of France, dated Paris, 14th November, 1844, and the Royal Academy of Sciences of Turin, respectively acknowledging the receipt of the Transactions and Proceedings of this Society:—

From the Royal Academy of Sciences of Brussels, dated 11th October, 1844, acknowledging the receipt of the Transactions and Proceedings of this Society, and transmitting certain works:—

From a Committee of the Law Academy, dated Philadelphia, 19th February, 1845, asking permission of the Society to have a copy made of the portrait of the late President, Mr. Du Ponceau, belonging to this Society:—

From Bishop Hughes, dated New York, February 8, 1845, on forwarding a package of books to the Society,—and

From Richard Seldiner, Vice Consul of Sweden and Norway, dated Philadelphia, 21st February, 1845, on transmitting a package of books for the Society, from M. Berzelius of Stockholm.

The request contained in the letter from the Committee of the Law Academy was granted.

The following donations were announced:—

FOR THE LIBRARY.

Nouveaux Mémoires de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Tome VIII. Bruxelles, 1834. 4to.—*From the Royal Academy of Sciences.*

Mémoires Couronnés, et Mémoires des Savants Etrangers, publiés par l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Tome XVI, 1843. Bruxelles, 1844. 4to.—*From the same.*

Annuaire de l'Académie Royale des Sciences, etc. de Bruxelles. Dixième Année, 1844. 18mo.—*From the same.*

Bulletins de l'Académie Royale des Sciences et Belles-Lettres de

Bruxelles. Tome VII. 1re Partie, No. 3 to 6, inclusive. Tome VII. 2me Partie, Nos. 7 and 8. Tome X. 2me Partie, No. 8 to 12, inclusive. Tome XI. 1re Partie, No. 1 to 6, inclusive. Tome XI. 2me Partie, Nos. 7 and 8. 8vo.—*From the same.*

Annales de l'Observatoire Royal de Bruxelles, publiées aux frais de l'Etat, par le Directeur, A. Quetelet, Secrétaire perpétuel de l'Académie Royale des Sciences et Belles-Lettres, etc. etc. etc. Tome III. Bruxelles, 1844. 4to.—*From the Director of the Observatory.*

Recherches Statistiques, par A. Quetelet, Président de la Commission Centrale de Statistique de Belgique, etc. etc. Bruxelles, 1844. 4to.—*From the Author.*

Annuaire de l'Observatoire Royal de Bruxelles, par A. Quetelet, Directeur de cet Établissement. 11me Année, 1844. Bruxelles, 1843. 18mo.—*From the Director, A. Quetelet.*

Kongl. Vetenskaps-Academiens Handlingar, för år 1842. Stockholm, 1843. 8vo.—*From the Royal Academy of Sciences of Stockholm.*

Ofversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Årg 1, 1844. Nos. 1 to 7, inclusive. 8vo.—*From the same.*

Års-Berättelse om Botaniska Arbeten och Upptäckter för år, 1838. Till Kongl. Vetenskaps-Academien afgifven den 31 Mars, 1839. Af Joh. Em. Wikström. Stockholm, 1842. 8vo.—*From the same.*

Års-Berättelse om Framstegen i Kemi och Mineralogi afgifven den 31 Mars 1844; af Jac. Berzelius, K. V. Acad. Secret. Stockholm, 1844. 8vo.—*From the same.*

Års-Berättelse om Zoologiens Framsteg under åren 1840–42. Till Kongl. Vetenskaps-Academien afgifven af Zoologiæ. Intendenterna vid Rikets naturhistoriska Museum. Tredje Delen. (Crustacea-Vermes,) af S. Lovén. Stockholm, 1844. 8vo.—*From the same.*

Tal af Kongl. Vetenskaps-Akademiens Præses Herr Hans Järta, hållet den 31 Mars 1839, på hundrado års-dagen efter Akademiens instiftalse. Stockholm, 1843. 8vo.—*From the same.*

Tal af Akademiens Præses Herr Friherre C. G. Von Brinkman, den 31 Mars 1843. Stockholm, 1843. 8vo.—*From the same.*

Die Theogonie, Philosophie und Kosmogonie der Hindus, von dem grafen M. Björnstjerna. Aus dem Schwedischen übersetzt und mit Anmerkungen begleitet von J. R. Stockholm, 1843. 8vo.—*From the Author.*

Jahrbücher der Literatur. January to December, 1843. Nos. 101 to 104, inclusive. Vienna. 8vo.—*From Baron Von Hammer Purgstall.*

Geschichte der Ilchane das ist der Mongolen in Persien. Von Hammer Purgstall. Zweiter Band. Darmstadt, 1843. 8vo.—*From the Author.*

Handbuch der Gesetze über ausschlieszende Privilegien auf neue Erfindungen, Entdeckungen und Verbesserungen. Von Dr. Anton Schuller. Wien, 1841. 8vo.—*From Baron Von Hammer Purgstall.*

M. Tudós Társasági Névkönyv, Astronomiai Naplóval és Kalendáriommal 1843–ra. Budén. 8vo.—*From the same.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series, Vol. IX. February, 1845. No. 2. 8vo.—*From Dr. R. M. Patterson.*

The Cyclopœdia of Practical Medicine. Edited by John Forbes, M.D. F.R.S., Alexander Tweedie, M.D., and John Conolly, M.D. Revised, with additions, by Robley Dunglison, M.D. Parts 1 to 24, inclusive. Philadelphia, 1844–45. 8vo.—*From Dr. Dunglison.*

Memorial soliciting a State Hospital for the Insane, submitted to the Legislature of Pennsylvania, February 3, 1845. Harrisburg, 1845. 8vo.—*From C. B. Trego, Esq.*

The Sanitary Condition of the Labouring Population of New York, with Suggestions for its Improvement. A Discourse (with Additions) delivered on the 30th December, 1844, at the Repository of the American Institute. By John H. Griscom, M.D. New York, 1845. 8vo.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten, Nos. 523, 524, 525. 4to.

Dr. Patterson exhibited to the Society a counterfeit sovereign, bearing the head of George IV., and dated 1824, which was so perfect an imitation of the genuine coin, as to elude detection by any of the sensible or mechanical tests in common use, singly or combined.

The spurious piece is of the full legal weight of the sovereign,—123.3 grains. It is of the true dimensions, except a scarcely perceptible increase in thickness. It has the true colour, not only at the

surface, but in the interior, when cut. Its mechanical execution is such as to present no fault to an ordinary observer, even with the aid of a glass.

The only process, short of actual assay, by which it can be detected, is a trial of its specific gravity. A genuine sovereign of the same colour, would show a specific gravity of about 17.70; the piece in question gives but 16.22.

On assay it was shown to be composed as follows:—

Gold,	803	thousandths,
Silver,	122	„
Copper,	75	„
	1000	

Such an alloy should show the specific gravity above, or very nearly, according to the printed tables prepared at the Mint, by the Assayers, Messrs. Eckfeldt and Du Bois.

The value of the piece is $4.26; that of the sovereign of full weight $4.86; making a profit on each piece of 60 cents, or about 14 per cent. Counterfeiters are rarely contented with so small a gain, and their fraud is therefore more easily detected. In the present case, the smallness of the profit in the individual piece, gives reason to apprehend that the roguery is to be made available by a grand operation, and that many such counterfeits may be already abroad.

Dr. Dunglison announced that the Secretaries had appointed him as Corresponding Secretary, and Prof. Frazer as Reporter, for the present year.

Dr. Patterson, on the part of the Committee appointed at the last stated meeting, to meet a Committee of the Athenæum, made a report, and offered the following resolution.

Resolved, That the proposal from the Athenæum, for the erection on the lot now occupied by the Society's hall, of a new building for the accommodation of the two Institutions, is deemed by the Society to be inexpedient, and that it be therefore respectfully declined.

The resolution was adopted, and the Committee was discharged.

Stated Meeting, March 7.

Present twenty-five members.

Dr. Bache, Vice-President, in the Chair.

Letters were received and read:—

From Mr. J. R. Ingersoll, dated Washington, 19th January, 1845, announcing that he had received and forwarded a donation of books from the French Minister of War:—

From the Royal Society of Antiquarians of the North, dated Copenhagen, 14th May, 1844, announcing a donation to the Library of the Society:—

From the French Minister, dated Washington, 12th February, 1845, announcing a donation to the Society's Library:—

From the American Colonization Society, dated Washington, 22d February, 1845, acknowledging the receipt of the Transactions of the Society, and announcing a donation to the Society's library:—and,

From Prof. S. S. Haldeman, dated Chicquesalunga, March 3, 1845, announcing the desire of the Allgemeine Schweitzerische Gesellschaft für die gesammten Naturwissenschaften, at Berne, Switzerland, to exchange publications with this Society.

The above mentioned Society was placed upon the list of exchanges of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Dictionnaire Français-Berbère (dialecte écrit et parlé par les Kabaïles de la division d'Alger) ouvrage composé par ordre de M. le Ministre de la Guerre. Paris, Imprimerie Royale, 1844. 8vo.—*From the Minister of War, Paris.*

Rudiments de la Langue Arabe de Thomas Erpénius, traduits en Français, accompagnés de Notes, et suivis d'un Supplément indiquant les différences entre le langage littéral et le langage vulgaire. Par A. E. Hébert, Capitaine du Génie. Paris, Imprimerie Royale, 1844. 8vo.—*From the same.*

Journal Asiatique. Quatrième Série. Tome IV. No. 18. Sep-

tembre—Octobre, 1844. 8vo.—*From the Asiatic Society of Paris.*

Die Königliche Gesellschaft für Nordische Alterthumskunde. Jahresversammlung, 1843. Copenhagen. 8vo.—*From the Royal Society of Northern Antiquaries.*

Om det Engelske Konjugationssystem. Med et Tillæg om Forholdet imellem Dansk og Engelsk. Forfattet af P. Hjort. Copenhagen, 1843. 4to.—*From the same.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. Jan. and Feb. 1845. No. 7. 8vo.—*From the Academy.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. IX. March, 1845. No. 3. 8vo.—*From Dr. R. M. Patterson.*

The African Repository and Colonial Journal. Vol. XXI. Feb. 1845. No. 2. 8vo.—*From the American Colonization Society.*

A Historical Examination of the State of Society in Western Africa, as formed by Paganism and Muhammedanism, Slavery, the Slave Trade and Piracy, &c. By Joseph Tracy. Boston, 1845. Second Edition. 8vo.—*From the same.*

The Literary Remains of the Rev. Jonathan Maxcy, D.D. With a Memoir of his Life. By Romeo Elton, D.D. New York, 1844. 8vo.—*From the Author.*

A Report to the Navy Department of the United States, on American Coals applicable to Steam Navigation, and to other purposes. By Walter R. Johnson. Washington, 1844. 8vo.—*From the Author.*

Letter from the Secretary of the Treasury, transmitting a letter from Professor Morse, relative to the Magnetic Telegraph. Doc. 24, 28th Congress, 2d Session, House of Representatives.—*From the Hon. J. R. Ingersoll.*

The Medical News and Library. Vol. III. March, 1845. No. 27. 8vo.—*From Messrs. Lea & Blanchard.*

Reminiscences of Old Gloucester: or Incidents in the History of the Counties of Gloucester, Atlantic, and Camden, New Jersey. By Isaac Mickle. Philadelphia, 1845. 8vo.—*From Townsend Ward, Esq.*

ADDITION TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences; par MM. les Secrétaires perpétuels. Tome XIX. Nos. 18 to 21, inclusive. 28th October to 18th November, 1844. 4to.

The Committee, consisting of Mr. Titian R. Peale, Mr. Lea, and Mr. Ord, on Mr. Haldeman's paper, entitled "Materials towards a History of the Coleoptera Longicornia of the United States," reported in favour of its publication, which was ordered accordingly.

This paper contains a general view of the Longicornia of the United States, including a list of the species, with references to the works in which they are published. The characters of several new genera, and descriptions of a large number of new species are given.

The list of Committees on subjects of science, which had not reported, was read.

The Committees on Prof. Gillis' paper, describing Instruments, on the Magnetic Observatory; and on Periodical Observations, were discharged.

Certain letters of a private nature, written by Mr. Jared Sparks, and found among the letters bequeathed to the Society by the late Mr. John Vaughan, were ordered to be returned to Mr. Sparks.

Stated Meeting, March 21.

Present, twenty members.

Dr. Bache, Vice-President, in the Chair.

A letter was received and read:—

From the Librarian of the Boston Society of Natural History, dated Boston, 9th March, 1845, announcing a deficiency in their series of the Transactions and Proceedings of this Society, which was referred to the Librarian, with authority to take order.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London, for the Year 1844. Part II. London, 1844. 4to.—*From the Royal Society.*

Proceedings of the Royal Society, 1843-44. No. 59. 8vo.—*From the same.*

Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the Year 1842: under the direction of George Biddell Airy, Esq., M.A., Astronomer Royal. Published by order of the Board of Admiralty, in obedience to her Majesty's command. London, 1844. 4to.—*From the same.*

Transactions of the Royal Society of Edinburgh. Vol. XV. Part IV. Edinburgh, 1844. 4to.—*From the Royal Society of Edinburgh.*

Proceedings of the Royal Society of Edinburgh, Nos. 23, 24. 8vo. *From the same.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland. No. XV. Part II. London, 1844. 8vo.—*From the Society.*

Twenty-eighth Annual Report of the American Colonization Society, with the Proceedings of the Board of Directors. Washington, 1845. 8vo.—*From the Society.*

The African Repository and Colonial Journal. Vol. XXI. March, 1845. No. 3. 8vo.—*From the same.*

The Zoologist: a Popular Monthly Magazine of Natural History, &c. No. 24. December, 1844. 8vo.—*From Edward Newman, Esq.*

The Phytologist: a Botanical Journal. No. XLIII. December, 1844. 8vo.—*From the same.*

Reports on the Washington Silver Mine in Davidson County, North Carolina. By Richard C. Taylor. With an Appendix, containing Assays of the Ores, returns of Silver and Gold produced, and Statements of the Affairs of the Washington Mining Company. Philadelphia, 1845. 8vo.—*From the Author.*

Observations on the Botany of Illinois, more especially in reference to the Autumnal Flora of the Prairies. By C. W. Short, M.D.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 522, 527, 528. 4to.

Prof. Frazer called the attention of the Society to the report of Mr. Richard C. Taylor, upon the Washington Silver Mine in Davidson County, North Carolina, presented by him to the Society's library this evening, and made some remarks upon the interesting peculiarities of the mine.

The mine consists of various ores of silver and lead intermixed with zinc, lying in two large and two smaller lodes and veins. These veins underlie to the west, and are cut off by two faults, one to the northward and one to the southward, which, being produced, meet to the westward of the workings. In consequence, as the works deepen, the length of the workings decrease, yet the whole content of the veins has not been found to diminish; the throw of the faults was not yet known, but must be determined when the veins within the area of the faults are worked out.

Dr. Patterson remarked, that this was the only silver mine worked in the United States, and that the product, as presented at the Mint, had been about $30,000 in silver, containing about $7000 in gold.

Dr. Bache called the attention of the meeting to the late experiments of Dr. Faraday upon the condensation of gases.

Stated Meeting, April 4.

Present, twenty-two members.

Dr. Bache, Vice-President, in the Chair.

A letter was received:—

From Signor Francesco Zantedeschi, dated Venice, 9th November, 1844, transmitting certain memoirs of which he is the author, and expressing his anxiety that a scientific intercourse should exist between America and Northern Italy, through this Society.

The following donations were announced:—

FOR THE LIBRARY.

The History of Oregon and California, and the other Territories on the North-west Coast of North America; accompanied by a Geographical View and Map of those Countries, and a number of Documents as Proofs and Illustrations of the History. By Robert Greenhow. Boston, 1844. 8vo.—*From the Department of State, Washington.*

Boston Journal of Natural History. Vol. II. August, 1839. No. 3, 4. 8vo. Vol. V. No. 1. January, 1845.—*From the Society.*

Proceedings of the Boston Society of Natural History. Nos. 17 to 21, inclusive. October, 1843, to November, 1844. 8vo.—*From the same.*

The Medical News and Library. Vol. III. April, 1845. No. 28. 8vo.—*From Lea & Blanchard.*

First Report on Meteorology, to the Surgeon-General of the United States Army, by James P. Espy, A.M. Washington, Oct. 9, 1843. 4to.—*From the Author.*

Report of the Select Committee of the House, relative to the Use of Mercury in the Practice of Medicine. Harrisburg, 1845. 8vo.—*From Charles B. Trego, Esq.*

Report of the Select Committee on the Maps, Plates, &c., of the Exploring Expedition. 28th Congress, 2d Session, House of Representatives, Doc. 160.—*From Titian R. Peale.*

Memoirs on the Military Resources of the Valley of the Ohio, as applicable to Operations on the Gulf of Mexico; and on a System for the Common Defence of the United States. By John Sanders. With a Review of the same by James L. Mason. Washington, 1845. 8vo.—*From Major Hartman Bache.*

Trattato del Magnetismo e della Elettricità dell' ab. Francesco Zantedeschi. Parte I. Venezia, 1844. 8vo.—*From the Author.*

Elenco delle Principali Opere Scientifiche presentate ad Accademie o pubblicate dell' Abate Francesco Zantedeschi. Venezia, 1842. 4to.—*From the same.*

Del Transporto della Materia Pesante nelle due opposte Correnti dell' Apparato Voltiano della loro Natura e del Moto Vorticoso o a Spirale dell' Arco Luminoso. Memoria dell' Abate Francesco Zantedeschi. Vicenza, 1844. 4to.—*From the same.*

Memoria sul Termo-Elettricismo Dinamico nei Circuiti formati di un solo metallo dell' Abate Francesco Zantedeschi. Vicenza, 1844. 4to.—*From the same.*

Report of Edward Miller, Civil Engineer, on the Improvement of the Schuylkill Navigation, made to the Board of Managers, March 11, 1845. 8vo.—*From S. W. Roberts.*

The list of Committees on subjects of science, which have not yet reported, was read.

The Committee on Prof. Henry's communications of elec-

trical induction, having at present nothing before them, were discharged.

The list of members appointed to write obituary notices of deceased members of the Society, was read.

Dr. Patterson drew the attention of the Society to a specimen of what is technically called a "grain" of gold, found on the lands of a Virginia gentleman, Mr. David R. Pulliam, in Spotsylvania County: its weight was $25\frac{1}{2}$ ounces: the quality of the gold, 897.5 thousandths by standard. The specific gravity of the gold was found to be 17.87. The specific gravity of the whole mass was 14.87; the value of the gold in it is $456.54, which was determined by the problem of Archimedes. Dr. Patterson referred to cases of grains of gold found in this country, which are on record in the Manual of Coins by Messrs. Eckfeldt and Du Bois, and to others found in other countries.

Professor Frazer mentioned one found in 1843, in the Ural mountains, described by Baron Humboldt in the Annales de Chimie, Tom. VII., which is the largest on record, weighing over 72 lbs. avoirdupois.

Stated Meeting, April 18.

Present, twenty-seven members.

Dr. Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Royal Asiatic Society, dated London, 2d November, 1844, acknowledging the receipt of the Transactions and Proceedings of the Society:—

From the Society of Antiquaries of London, dated London, 29th November, 1844, accompanying a donation of certain works to this Society:—

From Mr. C. A. Le Sueur, dated Havre, 14th February, 1845, accompanying a donation of Geological Views of the *Falaises* at the Cape of Laheve, near Havre:—and

From the American Minister at the Court of St. James, Mr. Everett, dated London, 14th March, 1845, in relation to the

next meeting of the *Scienziati Italiani*, which takes place at Naples, on the 20th September next.

The following donations were announced:—

FOR THE LIBRARY.

Archæologia; or, Miscellaneous Tracts, relating to Antiquity. Published by the Society of Antiquaries of London. Vol. XXX. London, 1844. 4to.—*From the Society of Antiquaries.*

An Index to Archæologia. From Vol. XVI. to Vol. XXX., inclusive. Published by the Society of Antiquaries of London. London, 1844. 4to.—*From the same.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VI. Nos. 9, 10, 11. 8vo.—*From the Royal Astronomical Society.*

Memoir of Francis Baily, Esquire, D.C.L., Oxford and Dublin, &c. &c. By Sir John F. W. Herschel, Bart. London, 1845. 8vo. *From the same.*

Annales des Mines. Quatrième Série. Tome V. 3e Livraison de 1844. Tome VI. 4e Livraison de 1844. 8vo.—*From the Engineers of Mines, Paris.*

Journal Asiatique. Quatrième Série. Tome IV. No. 19. Novembre, 1844. 8vo.—*From the Asiatic Society of Paris.*

The American Journal of Science and Arts. Vol. XLVIII. No. 2. April, 1845. 8vo.—*From the Editors.*

L'Art de Vérifier les Dates, depuis l'année 1770, jusqu'à nos jours. Publié par M. le Marquis de Fortiu. Tome XVIII. Paris, 1844. 8vo.—*From D. B. Warden, Esq.*

Mélanges, par J. C. F. Ladoucette. Seconde édition. Paris, 1845. 8vo.—*From the Author.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. I. No. 7. January, 1845. 8vo.—*From the Editor.*

The Zoologist; a Popular Monthly Magazine of Natural History. Nos. 25 and 26. 8vo.—*From Edward Newman, Esq.*

The Phytologist; a Botanical Journal. Nos. 44 and 45. January and February, 1845. 8vo.—*From the same.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. New Series. No. XVIII. April, 1845. 8vo. *From the Editor.*

Curtii Sprengelii facultatis medicæ Halensis senïoris Opuscula Academica collegit, edîdit, vitamque auctoris breviter enarravit Julius Rosenbaum, M.D. Viennæ, 1844. 8vo.—*From Dr. Hays.*

The Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1844. Philadelphia, 1845. 8vo.—*From the Directors.*

A Report to the Navy Department of the United States, on American Coals applicable to Steam Navigation, and to other purposes. By Walter R. Johnson. 8vo.—*From the Navy Department.*

Reports of the Majority and Minority of the Committee on Internal Improvements, relative to granting the Baltimore and Ohio Railroad the right of way through Pennsylvania. Harrisburg, 1845. 8vo.—*From C. B. Trego, Esq.*

Vues et Coupes du Cap de la Hève; Plan du littoral du Cap de la Hève, etc. etc. A lithographic view of the Cape near Havre, in France. By C. Lesueur.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XIX. Nos. 22 to 27, inclusive. 4to.

Astronomische Nachrichten. No. 526. 4to.

Dr. Hays was excused from the duty of preparing an obituary notice of Mr. Keating.

Dr. Patterson adverted again to the subject of grains of gold, and read from the Annales de Chimie, the account of the grain referred to by Professor Frazer at the last meeting. It weighed 23,159 dwts. Its fineness was not given, but its probable value was over 23,000 dollars.

Dr. Patterson then drew attention to a comparison between the value of the French standard kilogramme and our own weights, as deduced from the various weighings of French gold at the Mint—which comparison, he remarked, although not as accurate as those made for scientific purposes, was still sufficiently so to give to it interest and commercial importance.

On 14th May, 1836, an invoice of French indemnity gold was received at the Mint, consisting (besides coins) of 28 bars.

The weight stated by the French Mint was 296.1607 kilogrammes. At our Mint, weighing to the nearest dwt. the weight found was 793.5 lbs. Hence the weight of the kilogramme is deduced 2.6792767 lbs., or 15432.63379 grains. In weighing gold and silver the pound Troy is alone used.

Mr. Hassler's direct comparison of the standards gives 2.679367 lbs., or 15433.15902 grains. The difference between the two is 0.525228 grains.

The two first weighings were upon a beam considered less capable of accuracy than that used in the remaining eight. The mean of the last eight weighings gave as the value of the kilogramme 2.678844 lbs., or approximately 2.6789 lbs. A number easily remembered from the peculiar order of the decimal figures.

2.6789 lbs. is equivalent to 15430.464 grains, which is less than Mr. Hassler's determination by 2.695 grains.

It was to be expected that the weighing here would fall short of the weighing in France, on account of the handling and rubbing which the bars must necessarily undergo in transportation. On the other hand, Mr. Hassler's result is probably too high.

The result obtained upon comparison by the French Minister of the Interior, for the kilogramme, was - - - 15432.719
By Dr. Moll, - - - - - - 15432.265
By Weber, at Berlin, by platinum, - - - 15432.082
By Hassler, - - - - - - - 15432.634

15432 grains will correspond exactly to 643 dwts., or 32.15 oz., or 2.67916 lbs.

Upon 4th January, 1843, a deposit of French gold was made at the Mint by Mr. August Belmont.

The weights of the kilogramme deduced from the three weighings were respectively, 32.15494, 32.15282, 32.15780 oz.: mean 32.15487 oz., equivalent to 643.097 dwts., or 15434.337 grains, which gives an excess to the value of the kilogramme of about 2 grains.

Dr. Hays announced the death of Dr. Lorenzo Martini, of Turin, a member of this Society.

Mr. Kane having expressed a desire to be excused from serving upon the Committee on the revision of the By-laws, Mr. Dillingham was appointed upon that Committee in his stead.

The Prince of Canino and Musignano of Rome, was invited to represent this Society at the meeting of the *Scienziati Italiani* of Naples, on the 20th September next.

Mr. Edward Miller, Civil Engineer, of Philadelphia, was elected a member of the Society.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. MAY—AUGUST, 1845. No. 33.

Stated Meeting, May 2.

Present, twenty-seven members.

Prof. A. D. BACHE, Vice-President, in the Chair.

Mr. Edward Miller, a member elect, was presented, and took his seat.

Letters were announced and read:—

From the Museum d'Histoire Naturelle, dated Paris, 15th March, 1845, announcing the receipt of the Transactions and Proceedings of this Society: and,—

From the Bowditch Library, dated Boston, February, 1845, acknowledging the receipt of a donation from this Society.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Society for the Encouragement of Arts, Manufactures, and Commerce. Vol. LV. London, 1845. 8vo.—*From the Society.*

Third Bulletin of the Proceedings of the National Institute for the Promotion of Science, Washington, D. C. February, 1842, to February, 1845. Also, Proceedings of the Meeting of April, 1844. Washington, 1845. 8vo.—*From the Institute.*

Report of the Aboriginal Names and Geographical Terminology of the State of New York. Part I. Valley of the Hudson. Made to the New York Historical Society, by Henry R. Schoolcraft. New York, 1845. 8vo.—*From the New York Historical Society.*

The African Repository and Colonial Journal. Vol. XXI. April, 1845. No. 4. 8vo.—*From the American Colonization Society.*

Twenty-seventh and Twenty-eighth Annual Reports of the Superintending Committee of the London Provident Institution, 1843, 1844.—*From Wm. Vaughan, Esq.*

Letter to the Secretary of the Treasury, communicating a Report of Chemical Analyses of Sugars, Molasses, &c.; and of Researches on Hydrometers, made under the Superintendence of Prof. A. D. Bache. By Prof. R. S. M'Culloh.—*From the Author.*

Catalogue of Plants, collected by the Botanical Department of the Providence Franklin Society, principally in Rhode Island, in 1844. Arranged by S. T. Olney. 8vo.

Directions in regard to the Operations of the Coast Survey, for 1845-46. Approved by the Treasury Department, March, 1845. —*From Professor A. D. Bache.*

Letter to the Secretary of the Treasury, communicating a Report of the Superintendent of the Construction of Standard Weights and Measures.—*From the same.*

The Medical News and Library. Vol. III. May, 1845. 8vo.—*From Messrs. Lea & Blanchard.*

Extrait du Catalogue Général de Hector Bossange. Paris, 1845. 8vo.—*From Clement C. Biddle, Esq.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. Nos. 154 to 171, inclusive. December, 1843, to February, 1845. 8vo.

The Edinburgh New Philosophical Journal. Conducted by Professor Jameson. Nos. 71 to 75, inclusive. January, April, July, October, 1844. January, 1845. 8vo.

Astronomische Nachrichten. Nos. 529, 530. 4to.

On motion of Dr. Dunglison, Mr. Fraley was appointed to prepare an obituary notice of Mr. Wm. H. Keating.

Mr. Lea read a continuation of his paper on Fresh Water and Land Shells, which was referred to a Committee, consisting of Dr. Griffith, Dr. Hays, and Mr. Ord. The paper contains descriptions of twenty-six new species of the genera *Unio, Margaritana* and *Anodonta;* twenty-three of *Me-*

lania; two *Anculosa;* six of his new genus *Schizostoma;* and one *Paludina;* the whole being from the Southern States.

Dr. Franklin Bache having temporarily taken the chair,—

Prof. A. D. Bache called attention to the report made by him in February last, to the Treasury Department, on the progress of the construction of standard weights and measures, and of balances. A copy of this report had been presented to the Society at a previous meeting.

The work of constructing standards had been commenced by the late Mr. F. R. Hassler in 1835; and at the time of his decease the standard weights for the Custom Houses of the United States and for the States had been made, and generally delivered. One-third of the capacity measures had been completed, and the rest were in different stages of progress. About one-fourth of the measures of length had been finished, and the rest were in progress. Many other standards for miscellaneous purposes had been made and delivered. The balances used in the office of weights and measures to adjust standards had been made; two other balances had been finished, and thirty, intended for distribution to the States, had been commenced.

The standard weights sent to the Custom Houses and States, consisted of 1 lb. troy; 1, 2, 3, 4, 5, 10, 20, 25, and 50 lbs. avoirdupois; besides which, sets of weights from 10 oz. to $\frac{1}{1000}$ oz. troy had been distributed to the States.

The standard measure is a yard, subdivided.

The liquid capacity measures sent to the principal Custom Houses and to the States, consisted of a gallon, half gallon, quart, pint, and half pint.

The standard of dry measure was the half bushel, one of which had been prepared for each of the States.

The set of balances consisted of three; one for weights from 1 lb. to 150 lbs., one for medium weights, and one for small weights.

The plan of construction of the balances had been modified by Mr. Joseph Saxton, who had been appointed assistant in the office of weights and measures in January, 1845. The work on the balances had been advanced, during the past year, about one-seventh towards completion, being now about two-fifths done.

Much progress having been made in the preparation and distribution of standard measures when Professor Bache came into the charge of the work, he had deemed it necessary to adhere to the methods of

Mr. Hassler, and to use the tables founded upon his experiments, for reductions; otherwise the uniformity of the system would have been destroyed. During the past year, thirty-four gallon measures had been adjusted and compared, completing the part of the work relating to liquid capacity measures. A set of capacity measures had been adjusted and compared for the Ordnance Department; repeated comparisons had been made of the bars used in measuring the base lines of the coast survey. The results would be found in detail in the report.

Professor Bache then referred to the necessity for action by the different States to distribute standards to the counties, and thus to introduce uniformity in the weights and measures in actual use.

Professor Bache referred in this connexion to the successful effort of Mr. Saxton to render automatic the Troughton dividing engine imported by the late Mr. Hassler, for the workshop of the Coast Survey. The performance of this engine had never been satisfactory. Its use was fatiguing to the operator, and as he governed the action of the machine, irregularities must result. The length of time required to divide a circle, permitted great fluctuations of temperature, and the heat from the body of the workman acted continually as a disturbing cause. The division being made by a tool governed by hand, the cutting was necessarily imperfect. By a simple and effective mechanism, the engine had been rendered entirely automatic, a wheel turned by a handle giving motion to all the parts. Thus the screw, giving motion to the dividing wheel, was made to play regularly; and as the wheel moved, the cutting tool was raised, and, descending, traced lines of the requisite length for the subdivisions of five or ten minutes, quarter and half degrees, degrees, and ten degrees; and when the circle was completed, was thrown out of gear. The time of dividing a circle was reduced from more than two days, to less than two hours.

It had been found that the moveable centre of the machine was imperfect; and this defect remedied, it appeared that the cutting of the teeth upon the dividing wheel was not perfectly uniform. These smaller irregularities were in the course of correction. Each attempt to divide a circle upon the engine had been an improvement upon the preceding one.

Prof. A. D. Bache having resumed the chair,—

Mr. Walker communicated some observations upon the comet discovered by Captain Hiern in the Gulf of Mexico,

upon 11th January. Prof. Kendall and himself commenced observing it upon the night of 26th January, and continued until the middle of March. They had made about eight hundred micrometrical measurements, and the place of the comet had been compared with about one hundred fixed stars. The elements calculated by Prof. Encke agreed very closely with those Prof. K. obtained from these observations. Prof. Encke suggests that this may be the comet announced to appear in 1848. Messrs. W. and K. had also observed Mauvais' second comet on the 18th of January, and on several subsequent evenings, both with the equatorial and the meridian instruments.

Stated Meeting, May 16.

Present, twenty-two members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were announced and read:—

From Pierre de Angelis, dated Buenos Ayres, 18th February, 1845, relating to an error in the title of a pamphlet by him: and,—

From Antonio Ladislau Monteiro Baena, announcing a donation by him to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Summary of the Transactions of the College of Physicians of Philadelphia. From November and December, 1844, to March, 1845. Vol. I. No. 9. 8vo.—*From the College.*

Biographical Memoirs of John C. Otto, M.D., late Vice-President of the College of Physicians; read before the College by appointment, March 4, 1845. By Isaac Parrish, M.D. Philadelphia, 1845. 8vo.—*From the same.*

Fifty-eighth Annual Report of the Regents of the University of the State of New York. Read to the Legislature, March 1, 1845. Albany, 1845. 8vo.—*From the Regents.*

The African Repository and Colonial Journal. Vol. XXI. May, 1845. No. 5. 8vo.—*From the American Colonization Society.*

Transactions of the Historical and Literary Committee of the American Philosophical Society. Vol. III. Part I. Philadelphia, 1843. 8vo. Thirty Copies.—*From Henry D. Gilpin, Esq.*

On the Anthracite and Bituminous Coal Fields in China; the System of Mining, and the Prices of Coal, and Labour in its Production, and Transportation to Pekin. By Richard C. Taylor. Philadelphia, 1845. 8vo.—*From the Author.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. IX. May, 1845. No. 5. 8vo.—*From Dr. R. M. Patterson.*

A System of Geography, Ancient and Modern. By James Playfair, D.D., F.R.S., &c. &c. In Six Volumes, with Folio Atlas. Edinburgh, 1808—1814. 4to.

An Historical and Chronological Deduction of the Origin of Commerce, from the Earliest Accounts. By Adam Anderson. In Four Volumes. London, 1801. 4to.

[The two last mentioned works were deposited in the Society's Library, some years ago, by Charles N. Bancker, Esq., who now presents them to the Society.]

On the 19th of February, 1817, the late John G. Biddle, Esq., deposited in the Library of the Society, several valuable works, a list of which is recorded in the first volume of our Transactions, New Series, page 437. These works are now presented to the Society by Mrs. Mary Biddle, the relict of the deceased.

The Committee on Mr. Lea's paper, entitled "Descriptions of New Fresh Water and Land Shells," reported in favour of its publication in the Transactions of the Society, which was ordered accordingly.

In this paper Mr. Lea observed that he had now added twenty-three new species to the already long list of the *Melaniæ*, his last paper containing fifty-seven. He also adds six to the interesting genus *Schizostoma*, now making ten species in all, and twenty-six to the family *Naïades*. He gives an alphabetic list of all the described species of the genus *Melania*, making three hundred and eighty in

number. In regard to his own species, he says he is aware of the extreme difficulty of severation, arising from the fact of the existence of the vast number of species now described, and their consequent inosculation; but that he has endeavoured, by careful examination, to satisfy himself that their characteristics were persistent.

The following are descriptions of the new species embraced in this paper:—

Unio compressissimus. Testâ lævi, subtriangulari, valdè compressâ; valvulis crassis; natibus compressis; epidermide . . . ; dentibus cardinalibus parvis, crenulatis; lateralibus magnis, crassis curvisque; margaritâ albâ. *Hab.* Holston River, Tenn.—*President Estabrook.*

Unio pellucidus. Testâ lævi, obovatâ, subcompressâ, pellucidâ; valvulis pertenuibus; natibus prominulis, ad apices undulatis; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis, compressis erectisque; lateralibus longis, rectis lamellatisque; margaritâ cæruleo-albâ et iridescente. *Hab.* Chatahoochee River, Geo.—*Major Leconte.*

Unio pernodosus. Testâ pernodosâ, rotundatâ, subcompressâ; valvulis crassis; natibus elevatis; epidermide luteo-fuscâ; dentibus cardinalibus magnis; lateralibus brevibus, crassis subrectisque; margaritâ albâ. *Hab.* North Carolina.—*B. W. Budd, M.D.*

Unio atrocostatus. Testâ plicatâ, subquadratâ, inflatâ; valvulis crassis; natibus prominentibus; epidermide nigrâ, striatâ; dentibus cardinalibus magnis; lateralibus sublongis subrectisque; margaritâ albâ et iridescente. *Hab.* Claiborne, Ala.—*Judge Tait.* Tuscaloosa, Ala.—*B. W. Budd, M.D.* Alexandria, Louis.—*Josiah Hale, M.D.*

Unio latecostatus. Testâ crebrè plicatâ, ellipticâ, compressâ; valvulis crassis; natibus prominulis; epidermide tenebroso-fuscâ, valdè striatâ; dentibus cardinalibus magnis; lateralibus longis subrectisque; margaritâ albâ et valdè iridescente. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Unio hippopæus. Testâ plicatâ, ellipticâ, valdè inflatâ; valvulis subcrassis; natibus prominulis; epidermide luteo-fuscâ, striatâ; dentibus cardinalibus subgrandibus; lateralibus parvis curvisque; margaritâ albâ et iridescente. *Hab.* Lake Erie.—*B. W. Budd, M.D.*

Unio simplex. Testâ lævi, ellipticâ, subinflatâ; valvulis subcrassis; natibus subprominentibus; epidermide luteâ; dentibus cardinalibus parvis; lateralibus longis, crassis subrectisque; margaritâ albâ et iridescente. *Hab.* Black Warrior River, Ala.—*B. W. Budd, M.D.*

Unio unicolor. Testâ lævi, subrotundâ, subcompressâ; valvulis crassis; natibus subprominentibus; epidermide fuscâ; dentibus cardinalibus parvis; lateralibus longis subrectisque; margaritâ albâ et iridescente. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Unio flavescens. Testâ lævi, clliptică, subinflatâ; valvulis subtenuibus; natibus subprominentibus; epidermide luteo-corneâ, striatâ; dentibus cardinalibus parvis; lateralibus sublongis, subrectisque; margaritâ albâ et iridescente. *Hab.* Black Warrior River, Ala.—*B. W. Budd, M.D.*

Unio pallescens Testâ lævi, ellipticâ, valdè inflatâ; valvulis subcrassis; natibus subprominentibus; epidermide pallido-luteâ; dentibus cardinalibus magnis, compressis erectisque; lateralibus longis curvisque; margaritâ albâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Unio utriculus. Testâ lævi, ellipticâ, inflatâ; valvulis subcrassis; natibus subprominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis; lateralibus longis rectisque; margaritâ albâ et valdè iridescente. *Hab.* North Carolina. *B. W. Budd, M.D.*

Unio spatulatus. Testâ lævi, ellipticâ, compressâ; valvulis subtenuibus; natibus vix prominulis, ad apicem undulatis; epidermide luteâ, valdè radiatâ; dentibus cardinalibus parvis; lateralibus longis rectisque; margaritâ albâ et iridescente. *Hab.* Rock River, Wisconsin.—*Capt. Marryatt and B. W. Budd, M.D.*

Unio tumescens. Testâ lævi, triangulari, inflatâ; valvulis percrassis, natibus magnis elevatisque; epidermide tenebroso-fuscâ, radiatâ; dentibus cardinalibus parvis; lateralibus brevibus, crassis subcurvisque; margaritâ albâ et iridescente. *Hab.* Alexandria, Louis.—*J. Hale, M.D.*

Unio caperatus. Testâ lævi, obliquâ, compressâ; valvulis crassis; natibus elevatis; epidermide rufo-fuscâ; dentibus cardinalibus percrassis; lateralibus longis, a cardinalibus separatis, crassis curvisque; margaritâ albâ. *Hab.* Clinch River, Tenn.—*President Estabrook.*

Unio fulgidus. Testâ lævi, triangulari, inflatâ; valvulis crassis; natibus magnis elevatisque; epidermide tenebroso-fuscâ, politâ, radiatâ; dentibus cardinalibus parvis; lateralibus crassis rectisque; margaritâ albâ et iridescente. *Hab.* Alexandria, Louis.—*J. Hale, M.D.*

Unio pulvinulus. Testâ lævi, ellipticâ, inflatâ; valvulis crassis; natibus prominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus minutissimis; lateralibus brevis rectisque; margaritâ albâ et iridescente. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Unio hyalinus. Testâ lævi, obovatâ, subinflatâ, diaphanâ; valvulis pertenuibus; natibus prominulis, ad apices undulatis; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis, compressis; lateralibus longis rectisque; margaritâ cæruleo-albâ et iridescente. *Hab.* Richmond, Va.—*Major Leconte.*

Unio Estabrookianus. Testâ lævi, triangulari, valdè compressâ; valvulis crassis; natibus prominulis, compressis, ad apices undulatis; epidermide valdè striatâ, luteo-fuscâ, nitidâ; dentibus cardinalibus compressis; lateralibus brevis crassisque; margaritâ albâ et iridescente. *Hab.* Clinch River and Second Creek, Tenn.—*President Estabrook.*

Unio approximus. Testâ lævi, ellipticâ, inflatâ; valvulis subcrassis; natibus prominulis; epidermide luteâ, radiatâ; dentibus cardinalibus parvis, accuminatis; lateralibus longis subrectisque; margaritâ albâ et iridescente. *Hab.* Red River at Alexandria, Lou.—*J. Hale, M.D.*

Unio symmetricus. Testâ lævi, oblongâ, subcompressâ, valvulis subcrassis; natibus subprominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus compressis, elevatis, acuminatis; lateralibus longis lamellatisque; margaritâ albâ. *Hab.* Red River at Alexandria, Lou.—*J. Hale, M.D.*

Unio fuliginosus. Testâ lævi, transversâ, subcompressâ; valvulis subcrassis; natibus prominulis; epidermide tenebroso-fuscâ; dentibus cardinalibus

parvis; lateralibus longis curvisque; margaritâ vel albâ vel purpureâ. *Hab.* Cobb's Creek, near Philadelphia.—*R. E. Griffith, M.D.*

Unio caliginosus. Testâ lævi, ellipticâ, subcompressâ; valvulis subtenuibus; natibus prominulis ad apicem undulatis; epidermide tenebroso-fuscâ; dentibus cardinalibus compressis, elevatis; lateralibus longis subcurvisque; margaritâ albâ et iridescente. *Hab.* Red River, at Alexandria, Louisiana.—*J. Hale, M.D.*

Unio Binneyi. Testâ lævi, ellipticâ, valdè compressâ, striatâ; valvulis subtenuibus; natibus prominulis; epidermide tenebroso-fuscâ, nitidâ; dentibus cardinalibus parvis, compressis; lateralibus perlongis subcurvisque; margaritâ cæruleo-albâ et iridescente. *Hab.* Southern States.—*R. E. Griffith, M.D.*

Unio Gouldii. Testâ lævi, ellipticâ, subinflatâ, inequilaterali; valvulis subcrassis; natibus prominulis; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis, subcrassis; lateralibus longis curvisque; margaritâ subaureâ et valdè iridescente. *Hab.* Tuscaloosa, Ala.—*R. E. Griffith, M.D.*

Margaritana minor. Testâ lævi, triangulari, compressâ; valvulis tenuibus; natibus prominulis, ad apices undulatis; epidermide virido-luteâ; dentibus cardinalibus parvis; margaritâ cæruleo-albâ et iridescente *Hab.* Tennessee.—*S. M. Edgar, M.D.* North Carolina.—*B. W. Budd, M.D.*

Anodonta tetragona. Testâ lævi, oblongâ, valdè inflatâ; valvulis tenuibus; natibus prominulis; epidermide luteo-fuscâ, radiatâ; margaritâ cæruleo-albâ et iridescente. *Hab.* Alexandria, Lou.—*J. Hale, M.D.*

Melania Buddii. Testâ striatâ, cylindraceâ, subtenui, corneâ; spirâ attenuatâ; suturis impressis; anfractibus planulatis; aperturâ parvâ, ellipticâ, intus albidâ. *Hab.* Tennessee.—*B. W. Budd, M.D.*

Melania torta. Testâ lævi, claviformi, subcrassâ, tenebroso-fuscâ; spirâ obtusâ; suturis impressis; anfractibus convexis; aperturâ grandi, ellipticâ; columellâ tortâ. *Hab.* Big Creek, Lawrence County, Tenn.—*J. Clark.*

Melania pernodosa. Testâ tuberculatâ, conoideâ, subcrasssâ, corneâ, infernè striatâ; spira elevatâ, ad apicem costatâ; suturis undulatis; anfractibus octonis, planulatis, pernodosis; aperturâ parvâ, ad basim angulatâ et canaliculatâ, intus albidâ. *Hab.* Cyprus Creek, Florence, Ala.—*T. R. Dutton.*

Melania filum. Testâ carinatâ, conoideâ, subtenui, tenebroso-corneâ; spirâ elevatâ; suturis impressis; anfractibus planulatis, in medio carinatus; aperturâ parvâ, rhomboideâ; ad basim angulatâ, intus albidâ; columellâ tortâ. *Hab.* Alabama.—*Major Leconte.*

Melania nobilis. Testâ tuberculatâ, conoideâ, subcrassâ, luteo-corneâ; spirâ elevatâ; suturis irregulariter undulatis; anfractibus planulatis, in medio tuberculatis; aperturâ subgrandi, productâ, ad basim angulatâ et canaliculatâ, intus luteâ; columellâ tortâ. *Hab.* Alabama.—*Major Leconte.*

Melania carino-costata. Testâ plicatâ, carinatâ conoideâ, subtenui, vel luteâ vel castaneâ; spirâ subelevatâ; suturis sulcatis; anfractibus planulatis; aperturâ parvâ, ellipticâ; columellâ lævi. *Hab.* Alabama.—*Major Leconte.* Tennessee.—*B. W. Budd, M.D.*

Melania abrupta. Testâ lævi, abbreviato-conoideâ, subcrassâ, luteâ; spirâ abbreviatâ; suturis linearibus; anfractibus septenis, planulatis; aperturâ magnâ, ovatâ, intus albidâ. *Hab.* Alabama.—*Major Leconte.*

Melania pallescens. Testâ carinatâ, subacuto-conoideâ, subtenui, luteâ; spirâ subelevatâ; suturis impressis; anfractibus novenis, subconvexis; aperturâ parvâ, ovatâ, ad basim angulatâ, intus albidâ. *Hab.* Chester District, S. C. *Prof. Vanuxem.*

Melania lugubris. Testâ levi, subacuto-conoideâ, subcrassâ, tenebroso-fuscâ; spirâ subelevatâ; suturis latè impressis; anfractibus planulatis; aperturâ parvâ; rhomboideâ, intus cæruleâ, infernè angulatâ. *Hab.* Alabama. *Major Leconte.*

Melania spinalis. Testâ carinatâ, acuto-conoideâ, subtenui, luteâ, bifasciatâ; spirâ elevatâ; suturis exaratis; anfractibus planulatis; aperturâ parvâ, ovatâ, ad basim angulatâ, intus albidâ. *Hab.* Alabama.—*Major Leconte.*

Melania spurca. Testâ lævi, pyramidatâ, subcrassâ, tenebroso-fuscâ; spirâ subelevatâ; suturis subimpressis; anfractibus octonis, planulatis; aperturâ parvâ, rhomboideâ, ad basim angulatâ, intus albidâ. *Hab.* Alabama.—*Major Leconte.*

Melania harpa. Testâ striatâ, conoideâ, subcrassâ, corneâ; spirâ subelevatâ; suturis subimpressis; anfractibus subconvexis; aperturâ parvâ, ellipticâ, ad basim angulatâ, intus albidâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Melania basalis. Testâ lævi, ellipticâ, subcrassâ, luteo-viridi, fasciatâ; spirâ curtâ, obtusâ; suturis impressis; anfractibus convexis; aperturâ ovato-elongatâ, ad basim acuto-angulatâ, intus albida. *Hab.* Alabama.—*Major Leconte.*

Melania auriculæformis. Testâ lævi, ellipticâ, subtenui, luteâ; spirâ depressâ; suturis impressis; anfractibus senis, subconvexis; aperturâ elongatâ, contractâ, ad basim rotundatâ, intus albidâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Melania pumila. Testâ lævi, obtuso-conoideâ, subcrassâ, tenebroso-corneâ; spirâ depressâ; suturis valdè impressis; anfractis subconvexis; aperturâ elongatâ, contractâ, ad basim contorta, intus albidâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Melania protea. Testâ lævi, subcylindraceâ, crassâ, pupæformis, luteo-corneâ; spirâ elevatâ; suturis impressis; anfractibus septenis, subconvexis; aperturâ parvâ, rhomboideâ, ad basim angulatâ, intus albidâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Melania arctata. Testâ striatâ, coarctatâ, crassâ, luteo-corneâ; spirâ conoideâ; suturis valdè impressis; anfractibus senis, planulatis; aperturâ parvâ, rhomboideâ, intus albidâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Melania solida. Testâ lævi, obtuso-conicâ, crassâ, solidâ, tenebroso-corneâ; spirâ subbrevi; suturis valdè impressis; anfractibus convexis; aperturâ parvâ, rhomboideâ, ad basim contortâ, intus albâ; columellâ inflectâ. *Hab.* Tennessee.—*E. Foreman, M.D.*

Melania crebristriata. Testâ transversè et crebrissimè striatâ, subfusiformi, crassâ, luteo-corneâ; spirâ obtusâ, suturis impressis; anfractibus subconvexis; aperturâ parvâ, subovatâ, ad basim angulatâ, intus albidâ; columellâ inflectâ, supernè incrassatâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Melania modesta. Testâ lævi, conoideâ, subfusiformi, subtenui, nigrâ; spirâ subelevatâ; suturis linearibus; anfractibus planulatis, ultimo in medio angu-

lato; aperturâ ellipticâ, subgrandi, intus tenebrosâ. *Hab.* Chatahoochee River, at Columbus, Geo. *Dr. Boykin.*

Melania Haleiana. Testâ lævi, acuto-conoideâ, subtenui, luteo-corneâ, politâ; spirâ elevatâ; suturis impressis; anfractibus novenis, convexis; aperturâ parvâ, ovatâ, ad basim subangulatâ, intus albidâ. *Hab.* Alexandria, Lou. *J. Hale, M.D.*

Melania Alexandrensis. Testâ lævi, subacuto-conoideâ, subtenui, tenebroso-corneâ; spirâ subelevatâ; suturis subimpressis; anfractibus subplanulatis; aperturâ parvâ, subtrapezoidcâ, intus albidâ. *Hab.* Alexandria, Lou.—*J. Hale, M.D.*

Melania ovoidea. Testâ lævi, ellipticâ, subcrassâ, corneâ; spirâ brevi; suturis vix impressis; anfractibus senis, subconvexis; aperturâ magnâ, subovatâ, intus albidâ. *Hab.* Alexandria, Lou.—*J. Hale, M.D.*

Anculosa squalida. Testâ lævi, vel rotundâ vel ellipticâ, percrassâ, tenebroso-corneâ; spirâ obtusâ; suturis vix impressis; aperturâ magnâ, subrotundâ, intus albidâ; columellâ percrassâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Anculosa tintinnobulum. Testâ lævi, obtuso-conicâ, campanulatâ, fasciatâ, percrassâ, luteâ; spirâ brevi; suturis impressis; anfractibus quinis, impressis; aperturâ rotundâ, subgrandi; columellâ percrassâ, supernè callosâ. *Hab.* Tennessee.—*E. Foreman, M.D.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Schizostoma pagoda. Testâ carinatâ, conicâ, subcrassâ, tenebroso-corneâ; spirâ subobtusâ; suturis valdè impressis; anfractibus senis; fissurâ parvâ; aperturâ ellipticâ, intus albidâ; columellâ lævi. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Schizostoma Buddii. Testâ striatâ, subfusiformi, crassâ, tenebroso-corneâ; spirâ obtuso-conicâ; suturis irregulariter impressis; anfractibus senis, subinflatis; fissurâ parvâ, obliquâ; aperturâ magnâ, rhomboideâ, intus albidâ; columellâ supernè callosâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Schizostoma Babylonicum. Testâ striatâ, subfusiformi, subcrassâ, castaneâ; spirâ obtuso-conicâ; suturis impressis; anfractibus planulatis; fissurâ parvâ; aperturâ magnâ, ellipticâ, intus subcorneâ; columellâ lævi, ad basim angulatâ, supernè incrassatâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Schizostoma constrictum. Testâ lævi, subfusiformi, subtenui, luteo-corneâ; spirâ obtusâ; suturis impressis; anfractibus coarctatis; fissurâ submagnâ, subobliquâ; aperturâ magnâ, ellipticâ, intus albidâ; columellâ lævi, ad basim subangulatâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Schizostoma laciniatum. Testâ lævi, obtuso-conicâ, subcrassâ, fasciatâ, luteo-corneâ; spirâ obtusâ, suturis exaratis; anfractibus convexis; fissurâ profundâ; aperturâ ellipticâ, intus albidâ; columellâ lævi, supernè incrassatâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Schizostoma funiculatum. Testâ striatâ, ellipticâ, subcrassâ, castaneâ; spirâ obtusâ; suturis valdè impressis; anfractibus convexis; fissurâ submagnâ, obliquâ; aperturâ magnâ, ellipticâ; columellâ supernè callosâ. *Hab.* Tuscaloosa, Ala.—*B. W. Budd, M.D.*

Paludina Halciana. Testâ lævi, ventricoso-conoideâ, subtenui, rufo-corneâ, imperforatâ; spirâ brevi; suturis valdè impressis; anfractibus quaternis, sub-

convexis; aperturâ magnâ, subrotundatâ, cæruleâ. *Hab.* Alexandria, Lou.—*J. Hale, M.D.*

On motion of Prof. Frazer, Prof. Haldeman was authorized to withdraw his paper, entitled, "Observations on General Phonology and Alphabetical Notation, &c." read to the Society 1st November, 1844; and the Committee thereon was discharged.

The death of Mr. John Guillemand, of Oxford, a member of this Society, was announced.

Major Bache laid on the table, for examination by the members, a map of Sandy Hook, received by him, during the course of the last winter, from Professor Bache, superintendent of the Coast Survey, exhibiting the increase of that headland from the earliest surveys.

The first survey is by Lieut. John Hill, in 1778. The next was made in 1779, by Des Barres, a name of high authority. Then follows the survey of Capt. John Le Conte, U. S. Assistant Topographical Engineer, of 1819, which is succeeded by that of the Coast Survey of 1836. The survey next in order of time, is that executed by himself in 1842; and finally, a second survey by the Coast Survey, made in 1844. A comparison of the shore lines of these surveys, omitting Hill's survey, which, from the absence of a general resemblance found between all those of a subsequent date, is not considered accurate, shows a great increase of that headland northerly. This increase, measured between parallels of latitude, is as follows:—

From 1779 to 1819, 40 years, 540 feet, or 13.5 feet per year.
From 1819 to 1836, 17 years, 1150 feet, or 67.6 feet per year.
From 1836 to 1842, 6 years, 630 feet, or 105 feet per year.
From 1842 to 1844, 2 years, 200 feet, or 100 feet per year.

Besides this northerly elongation, the increase in elevation will, on an examination of the soundings at the point of the Hook, appear quite as remarkable. While the Coast Survey of 1836 gives depths of 40 and 102 feet at low water, his survey of 1842, and the Coast Survey of 1844, show fast land at the same points respectively. It would likewise appear by a comparison of the best surveys, that while Sandy Hook is thus making out, Flynn's Knoll, on the other side of the main ship channel, stands fast; thus contracting the width

of the channel, the depth of which does not seem to have materially changed.

The cause of the extraordinary increase at the extremity of this headland, is attributed by some to the general prevalence of the south-east winds on that part of the coast. It is supposed that these winds, striking the shore obliquely in the direction of the point of the Hook, carry up the slope the sand, which, returning by gravitation on the shortest line to the sea, is again thrown up; and thus, by successive efforts, is deposited at the point in question. If this be the true explanation of the increase, it is fair to conclude, as the materials are furnished from the sea along the shore line, which here trends for many miles in the same direction, that, whenever this line is cut across, as it is at times by the opening of Shrewsbury Inlet, this increase would be correspondingly diminished; the deposit being made at the Inlet of the particles, which would otherwise be carried forward to the extremity of the Hook. On the other hand, it is not unreasonable to suppose that the Shrewsbury River, when open directly to the sea, is itself a fruitful source, under the operation just explained, from which the deposit is derived. The truth or error of either of these opinions, or of the theory of the progress of the sands northerly, under the influence of the south-east winds, can probably only be proved by frequent surveys showing the increase, in connexion with exact records of the time of the opening and shutting of the inlet in question.

The Treasurer laid before the Society an account presented by Mr. Frederick Brown, on the part of the executors of the late Mr. Dunn, which, on motion, was referred to a Committee, consisting of Mr. Thos. I. Wharton, Mr. Williams, and Mr. Kane, to report thereon.

On motion of Dr. Patterson, the request of Mr. Wilde, that a plaster cast might be made from the Society's bust of Franklin, by Houdon, was granted, with the understanding that it should be done in the Society's Hall, under the inspection of the Librarian.

Stated Meeting, June 20.

Present, twenty-seven members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were received and read:—

From Richard Owen, dated London, 18th March, 1845, acknowledging the receipt of notice of his election as a member of this Society:—

From the Geological Society of London, dated May 1st, 1845, acknowledging the receipt of a donation from the Society:—

From the Regents of the University of New York, dated Albany, 6th June, 1845, acknowledging the receipt of donations from the Society:—

From the New York Historical Society, dated New York, June 1845, acknowledging the receipt of the Proceedings of this Society:—

From the First Class of the Royal Society of Sciences of Holland, dated Amsterdam, 22d March, 1843, acknowledging the receipt of the Transactions of this Society, and announcing a donation:—

From the same Society, dated Amsterdam, 31st March, 1844, acknowledging the receipt of Transactions and Proceedings of this Society, and announcing a donation: and,—

From Lieut. Charles Wilkes, U. S. N., dated Philadelphia, 23d May, 1845, announcing a donation to the Society.

Mr. Kane announced that a letter had been received by Dr. Dunglison, from Prof. Van Raumer, acknowledging the receipt of notice of his election. Dr. D.'s sickness prevented him from reading it to the Society.

The following donations were announced:—

FOR THE LIBRARY.

The Journal of the Royal Geographical Society of London. Vol. XIII. Part II. 1844. 8vo. Vol. XIV. Part II. 1844. 8vo.—*From the Society.*

Bulletin de la Société de Géographiè. Troisième Série. Tome I. Paris, 1844. 8vo.—*From the Society.*

Nieuwe Verhandelingen der Eerste Klasse van het Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoonekunsten te Amsterdam. Tiende Deel. In Three Parts. Amsterdam, 1844. 4to.—*From the Royal Netherlands Institute.*

Het Instituut, of Verslagen en Mededeelingen, uitgegevin door de Vier Klassen van het Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoonekunsten. Over den jare, 1841, 4 numbers: over den jare, 1842, 4 numbers: over den jare, 1843, 4 numbers: and Nos. 1 and 2 of 1844. 8vo.—*From the same.*

The African Repository and Colonial Journal. Vol. XXI. June, 1845. No. 6. 8vo.—*From the American Colonization Society.*

Introductory Address of the Hon. R. J. Walker, delivered before the National Institute, at its April Meeting, 1844. Washington, 1845. 8vo.—*From the Institute.*

The Twenty-ninth Report of the Directors of the American Asylum, at Hartford, for the Education and Instruction of the Deaf and Dumb. Hartford, 1845. 8vo.—*From the Directors.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. IX. June, 1845. No. 6. 8vo.—*From Dr. Patterson.*

Narrative of the United States Exploring Expedition, during the Years 1838, 1839, 1840, 1841, 1842. By Charles Wilkes, U. S. N., Commander of the Expedition, Member of the American Philosophical Society, &c. In Five Volumes, and an Atlas. Philadelphia. Lea & Blanchard, 1845. 4to.—*From the Author.*

Ornithological Biography, or an Account of the Habits of the Birds of the United States of America; accompanied by Descriptions of the Objects represented in the Work, entitled "Birds of America." By John James Audubon, F.R.SS. L. and E., &c. &c. Vol. IV. Edinburgh, 1838. 8vo.—*From the Author.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. I. No. 8. April, 1845. London. 8vo.—*From the Editor.*

The Zoologist: a Popular Monthly Magazine of Natural History.

Nos. 27 and 28. March, April, 1845. 8vo.—*From Edward Newman, Esq., Editor.*

The Phytologist: a Botanical Journal. No. XLVII. April, 1845. London. 8vo.—*From the same.*

On the Genus Sigillaria: Contributions towards establishing the General Characters of the Fossil Plants of the Genus Sigillaria. By William King, Esq. From the Edinburgh New Philosophical Journal, for January, 1844. 8vo.—*From the Author.*

Discurso dirigido ao Instituto Historico e Geografico do Brasil pelo seu Socio Correspondente Antonio Ladislau Monteiro Baena. Maranhão, Anno, 1844. 8vo.—*From the Author.*

Report of Experiments on Gunpowder, made at Washington Arsenal in 1843 and 1844. By Captain Alfred Mordecai, of the Ordnance Department. Washington, 1845. 8vo.—*From Major Hartman Bache.*

Études sur les Échinides, par M. Charles des Moulins. Première Partie. Études Générales, renfermant Trois Mémoires. Bordeaux, 1835, 1837. 8vo.—*From Isaac Lea, Esq.*

A Catalogue of the Generic and Sub-Generic Types of the Class Aves—Birds. Newcastle (England), 1840. 8vo.—*From the same.*

Report of the Natural History Society of the Counties of Northumberland, Durham, and Newcastle upon Tyne, for the Year ending August 1, 1833. 8vo.—*From the same.*

The Medical News and Library. Vol. III. June, 1845. No. 30. 8vo.—*From Messrs. Lea & Blanchard.*

Interference of the Executive in the Affairs of Rhode Island. 28th Congress, 1st Session, House of Representatives, No. 546.—*From Joseph R. Ingersoll, Esq.*

Message of the President of the United States to the Two Houses of Congress, at the Commencement of the Second Session of the 28th Congress, Dec. 3, 1844.—*From the same.*

Annual Report of the Commissioner of Patents, for the Year 1844. House of Representatives, No. 78.—*From the same.*

Commerce and Trade: Letter from the Secretary of State, transmitting Returns of the Consuls and Commercial Agents of the United States, at the several Ports abroad, containing Information in regard to the Amount and Description of Commerce and Trade between the United States and Foreign Countries, &c. March 3, 1845.—*From the same.*

Map of Texas and the Country adjacent. Compiled, from the best authorities for the State Department, under the direction of Col. J. J. Abert, by W. H. Emory. War Department, 1844.—*From the same.*

Coast Survey: an Article from the Biblical Repertory and Princeton Review, for April, 1845.—*From Professor Henry.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 531 to 537, inclusive. April 1, to May 24, 1845. 4to.

Niles' National Register. From Sept. 1843, to March, 1844. Vol. 65. From March, 1844, to Sept. 1844. Vol. 66. From Sept. 1844, to March, 1845. Vol. 67. Folio.

Dr. Horner read an obituary notice of Dr. Wm. S. Jacobs, lately a member of this Society.

On motion, Mr. Kane was excused from the duty of preparing an obituary notice of the late Judge Baldwin.

Mr. Ord announced the death of Prof. J. Gummere, on 31st May, 1845, in the 62d year of his age.

On motion of Mr. Kane, Dr. Patterson was appointed to prepare an obituary notice of Prof. Gummere.

Dr. Patterson exhibited to the Society a curious coin, found in a marl pit in New Jersey, twenty feet below the surface; which is a counterfeit of a Belgian coin of 1648.

Dr. Patterson also exhibited a mass of nails melted together at the fire in Pittsburg, presenting a series of united tubes.

Prof. Henry stated that he had received a similar mass from the New York fire, and found that the action of the fire had changed the nails to a certain depth, leaving a core unchanged, which had afterwards fallen or been drawn out, leaving the hollow tubes.

Prof. Henry, of Princeton, made a verbal communication of a series of experiments made by himself and Prof. Alexander relative to the spots on the sun.

His attention was directed to this subject, by an article in the September number of the Annales de Chimie, by M. Gautier, upon the influence of the spots on the sun on terrestrial temperature. It is well known that Sir William Herschel entertained the idea, that the

appearance of solar spots was connected with a more copious emission of heat, and that the seasons during which they were most abundant, were most fruitful in vegetable productions; and, pursuing this idea, he was led to trace an analogy between the price of corn and the number of solar spots, during several successive periods. The result of this investigation, so far as it was extended, seemed to favour the views of this distinguished philosopher. A mode of investigation of this kind, however, is not susceptible of any great degree of accuracy; the price of corn is subject to so many other causes of variation besides that of solar temperature, that little reliance can be placed on it.

M. Gautier has attempted to investigate the influence of the solar spots on terrestrial temperature, by comparing the temperature of several places on the earth's surface, during the years in which the spots were most abundant, with those in which the smallest number were perceptible. From all the observations collected, it seems to be indicated, that during the years in which the spots were the greatest in number, the heat has been a trifle less; but the results are far from being sufficiently definite to settle the question: and M. Gautier remarks, that a greater number of years of observation at a greater number of stations, will be necessary to establish a permanent connexion between these phenomena.

The idea occurred to Prof. Henry, that much interesting information relative to the sun might be derived from the application of a thermo-electric apparatus to a picture of the solar disc, produced by a telescope, on a screen, in a dark room. This idea was communicated to Prof. Alexander, who readily joined in the plan for reducing it to practice. It was agreed, that they should first attempt to settle the question of the relative heat of the spots as compared with the surrounding luminous portions of the sun's disc. The first experiments were made on the 4th of January, 1845. Mr. Alexander had observed, a few days previous, a very large spot, more than 10,000 miles in diameter, near the middle of the disc. To produce the image of this spot, a telescope of four inches aperture, and four and a half feet focus, was placed in the window of a dark room, with a screen behind it, on which the image of the spot was received. The instrument was placed behind the screen, with the end slightly projecting through a hole made for the purpose, and a small motion of the telescope was sufficient to throw the image of the spot off or on the end of the pile. The spot was very clearly defined, and might have been

readily daguerreotyped, had the telescope been furnished with an equatorial movement. The form of the penumbra of the spot, as it appeared on the screen, was that of an irregular oblong, about two inches in one direction, and an inch and a half in the other. The dark central spot within the penumbra was nearly square, of about three-fourths of an inch on the side, and a little larger than the end of the thermo-pile.

The method of observation consisted in first placing, for example, a portion of the picture of the luminous surface of the sun in connexion with the face of the pile, and after noting the indication of the needle of the galvanometer, the telescope was then slightly moved, so as to place the dark part of the spot directly on the face of the pile, the indication of the needle being again noted. In the next set of experiments the order was reversed; the picture of the spot at the beginning of the experiment was placed in connexion with the pile, and afterward a new part of the luminous portion of the disc was made to occupy the same place.

The thermo-electrical apparatus used in these experiments, was made by Ruhmkorff, of Paris; and in order to render the galvanometer more sensitive, two bar magnets, arranged in the form of the legs of a pair of dividers, were placed with the opening downwards, in a vertical plane, above the needle, so that, by increasing or diminishing the angle, the directive power of the needle could be increased or diminished, and, consequently, the sensibility of the instrument could be varied, and the zero point changed at pleasure.

In the present experiments, in order to mark more definitely the difference in temperature, after the needle had been deflected by the heat of the sun, the magnetic bars above mentioned were so arranged, as to repel it back to near the zero point, so that it might, in this position, receive the maximum effect of any variation in the electrical current.

Twelve sets of observations were made on the first day, all of which, except one, gave the same indication, namely, that *the spot emitted less heat than the surrounding parts of the luminous disc.* The following is a copy of the record made at the time of the observations. The degrees are those marked on the card of the galvanometer, and are of course arbitrary.

Spot, $3°\frac{1}{4}$.	Sun, $5°\frac{1}{4}$.
Sun, $4°\frac{1}{2}$.	Spot, $4°$.

Sun, 3°.	Spot, $4°\frac{1}{2}$.
Spot, $1°\frac{3}{4}$.	Sun, 5°.
Spot, 2°.	Sun, $4°\frac{1}{2}$.
Sun, 3°.	Spot, $3°\frac{3}{4}$.
Sun, $2°\frac{1}{2}$.	Sun, 2°.
Spot, 2°.	Spot, $3°\frac{1}{4}$.*
Spot, 2°.	Spot, $0°\frac{3}{4}$.
Sun, $2°\frac{1}{4}$.	Sun, $2°\frac{1}{2}$.
Spot, $4°\frac{3}{4}$.	Sun, $1°\frac{1}{4}$.
Sun, 5°.	Spot, 0°.

The change in the temperature during the intervals of observation, is due to the variations in the temperature of the room differently affecting the two extremities of the pile.

In consequence of cloudy weather, another set of observations were not obtained until the 10th of January, and at this time the spot had very much changed its appearance; the penumbra, while it retained its dimensions in one direction, was much narrowed in the other, and the dark part was separated into two small ones; also the sky was not perfectly clear, and therefore the results were not as satisfactory as those of the previous observations; the indications were, however, the same as in the other sets, exhibiting a less degree of heat from the spots.

Cloudy weather prevented other observations on the heat of different parts of the sun, particularly a comparison between the temperature of the centre and the circumference of the disc, which would have an important bearing on the question of an atmosphere of the sun. The observations will be continued, and any results of interest which may be obtained, will be communicated to the Society.

Professor Henry also gave an account of some observations he had made on capillarity, in addition to those he had before communicated to the Society on the same subject.

In 1839, he presented the results of some experiments on the permeability of lead to mercury; and subsequent observation had led him to believe that the same property was possessed by other metals in reference to each other. His first attempt to verify this conjecture

* At this observation a slight cloud probably passed over the sun's disc.

was made with the assistance of Dr. Patterson, at the United States Mint. For this purpose, a small globule of gold was placed on a plate of sheet iron, and submitted to the heat of an assaying furnace; but the experiment was unsuccessful; for, although the gold was heated much above its melting point, it exhibited no signs of sinking into the pores of the iron. The idea afterward suggested itself, that a different result would have been obtained had the two metals been made to adhere previous to heating, so that no oxide could have been formed between the surfaces. In accordance with this view, Prof. H. inquired of Mr. Cornelius, of Philadelphia, if, in the course of his experience in working silver-plated copper, in his extensive manufactory of lamps, he had ever observed the silver to disappear from the copper when the metal was heated. The answer was, that the silver always disappears when the plate is heated above a certain temperature, leaving a surface of copper exposed; and that it was generally believed by the workmen, that the silver evaporates at this temperature.

Professor H. suggested that the silver, instead of evaporating, merely sunk into the pores of the copper, and that by carefully removing the surface of the latter by the action of an acid, the silver would reappear. To verify this by experiment, Mr. Cornelius heated one end of a piece of thick plated copper to nearly the melting point of the metal; the silver at this end disappeared, and when the metal was cleaned by a solution of dilute sulphuric acid, the end which had been heated presented a uniform surface of copper, whilst the other end exhibited its proper coating of silver. The unsilvered end of the plate was next placed, for a few minutes, in a solution of muriate of zinc, by which the exterior surface of copper was removed, and the surface of silver was again exposed. This method of recovering the silver before the process of plating silver by galvanism came into use, would have been of much value to manufacturers of plated ware, since it often happened that valuable articles were spoiled, in the process of soldering, by heating them to the degree at which silver disappears.

It is well known to the jeweller, that articles of copper, plated with gold, lose their brilliancy after a time, and that this can be restored by boiling them in ammonia; this effect is probably produced by the ammonia acting on the copper, and dissolving off its surface, so as to expose the gold, which, by diffusion, has entered into the copper.

A slow diffusion of one metal through another probably takes place

in cases of alloys. Silver coins, after having lain long in the earth, have been found covered with a salt of copper. This may be explained by supposing that the alloy of copper, at the surface of the coin, enters into combination with the carbonic acid of the soil, and being thus removed, its place is supplied by a diffusion from within; and in this way it is not improbable that a considerable portion of the alloy may be exhausted in the process of time, and the purity of the coin be considerably increased.

Perhaps, also, the phenomenon of what is called *segregation*, or the formation of nodules of flint in masses of carbonated lime, and of indurated marl in beds of clay, may be explained on the same principle. In breaking up these masses, it is almost always observed, that a piece of shell or some extraneous matter occupies the middle, and probably formed the nucleus, around which the matter was accumulated by attraction. The difficulty consists in explaining how the attraction of cohesion, which becomes insensible at sensible distances, should produce this effect. To explain this, let us suppose two substances uniformly diffused through each other by a slight mutual attraction, as in the case of a lump of sugar dissolved in a large quantity of water, every particle of the water will attract to itself its proportion of the sugar, and the whole will be in a state of equilibrium. If the diffusion at its commencement had been assisted by heat, and this cause of the separation of the homogeneous particles no longer existed, the diffusion might be one of unstable equilibrium; and the slightest extraneous force, such as the attraction of a minute piece of shell, might serve to disturb the quiescence, and draw to itself the diffused particles which were immediately contiguous to it. This would leave a vacuum of the atoms around the attracting mass: for example, as in the case of the sugar, there would be a portion of the water around the nucleus deprived of the sugar; this portion of the water would attract its portion of sugar from the layer without, and into this layer the sugar from the layer next without would be diffused, and so on until, through all the water, the remaining sugar would be uniformly diffused. The process would continue to be repeated, by the nucleus again attracting a portion of the sugar from the water immediately around it, and so on until a considerable accumulation would be formed around the foreign substance.

We can in this way conceive of the manner by which the molecular action, which is insensible at perceptible distances, may produce results which would appear to be the effect of attraction acting at a distance.

Professor Henry also made a communication relative to a simple method of protecting from lightning, buildings covered with metallic roofs.

On the principle of electrical induction, houses thus covered are evidently more liable to be struck than those furnished either with shingle or tile. Fortunately, however, they admit of very simple means of perfect protection. It is evident, from well established principles of electrical action, that if the outside of a house were encased entirely in a coating of metal, the most violent discharge which might fall upon it from the clouds would pass silently to the earth without damaging the house, or endangering the inmates. It is also evident, that if the house be merely covered with a roof of metal, without projecting chimneys, and this roof were put in metallic connexion with the ground, the building would be perfectly protected. To make a protection, therefore, of this kind, the Professor advises that the metallic roof be placed in connexion with the ground, by means of the tin or copper gutters which serve to lead the water from the roof to the earth. For this purpose, it is sufficient to solder to the lower end of the gutter a riband of sheet copper, two or three inches wide, surrounding it with charcoal, and continuing it out from the house until it terminates in moist ground. The upper ends of these gutters are generally soldered to the roof; but if they are not in metallic contact, the two should be joined by a slip of sheet copper. The only part of the house unprotected by this arrangement will be the chimneys; and in order to secure these, it will only be necessary to erect a short rod against the chimney, soldered at its lower end to the metal of the roof, and extending fifteen or twenty inches above the top of the flue.

Considerable discussion in late years has taken place in reference to the transmission of electricity along a conductor; whether it passes through the whole capacity of the rod, or is principally confined to the surface. From a series of experiments presented to the American Philosophical Society, by Professor Henry, on this subject, it appears that the electrical discharge passes, or tends to pass, principally at the surface; and as an ordinary sized house is commonly furnished with from two to four perpendicular gutters (generally two in front and two in the rear), the surface of these will be sufficient to conduct, silently, the most violent discharge which may fall from the clouds.

Professor Henry also stated, that he had lately examined a house

struck by lightning, which exhibited some effects of an interesting kind. The lightning struck the top of the chimney, passed down the interior of the flue to a point opposite a mass of iron placed on the floor of the garret, where it pierced the chimney; thence it passed explosively, breaking the plaster, into a bedroom below, where it came in contact with a copper bell-wire, and passed along this horizontally and silently for about six feet; thence it leaped explosively through the air a distance of about ten feet, through a dormer window, breaking the sash, and scattering the fragments across the street. It was evidently attracted to this point by the upper end of a perpendicular gutter, which was near the window. It passed silently down the gutter, exhibiting scarcely any mark of its passage until it arrived at the termination, about a foot from the ground. Here again an explosion appeared to have taken place, since the windows of the cellar were broken. A bed, in which a man was sleeping at the time, was situated against the wall, immediately under the bell-wire; and although his body was parallel to the wire, and not distant from it more than four feet, he was not only uninjured, but not sensibly affected. The size of the hole in the chimney, and the fact that the lightning passed along the copper wire without melting it, show that the discharge was a small one, and yet the mechanical effects, in breaking the plaster, and projecting the window frame across the street, were astonishingly great.

These effects the Professor attributes to a sudden repulsive energy, or expansive force developed in the air along the path of the discharge. Indeed, he conceives that most of the mechanical effects which are often witnessed in cases of buildings struck by lightning, may be referred to the same cause. In the case of a house struck within a few miles of Princeton, the discharge entered the chimney, burst open the flue, and passed along the *cockloft* to the other end of the house; and such was the explosive force in this confined space, that nearly the whole roof was blown off. This effect was, in all probability, due to the same cause which suddenly expands the air in the experiment with Kinnersly's electrical air thermometer.

Dr. Patterson stated, that Mr. Jefferson was of the opinion that metal roofs protected buildings, not from being struck, but from the danger of the stroke; the contrary opinion is generally held, but Prof. Henry's experiments show that Mr. Jefferson was correct. Dr. P. saw the lightning strike a row of dormitories with metal roofs, at the University of Virginia;

the flash was very severe, but produced no evil effect; the lightning had spread itself over the surface, and left its mark at each interruption of the conductor, but did no damage. It was said at the University, that the Rotunda had been frequently struck without injury.

Mr. Fraley, on behalf of the Committee appointed to adjust the claim of Mr. Wm. D. Lewis, reported that the proposed arrangement had been made, and the bonds of the Society delivered and cancelled.

Dr. Patterson presented to the Society an application from the chairman of a joint committee of the City Councils and the County Board, for the purchase of the Society's property, which was referred to a special Committee, consisting of Dr. Patterson, Mr. Fraley, and Mr. Coles, to report thereon.

On motion of Dr. Horner, the head of the Mastodon, belonging to the Society, was placed in the custody of the University of Pennsylvania, to be put in the Wistar Museum.

Stated Meeting, July 18.

Present, fourteen members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Linnæan Society, dated London, 18th April, 1845, acknowledging the receipt of donations from this Society: and,—

From A. D. Bache, dated Washington, 24th June, 1845, announcing a donation from the Treasury Department of the United States.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, ou Figures et Descriptions de Plantes Belgiques. Par Jan Kops and J. E. van der Trappen. Livraisons No. 134, 135, 136. 4to. Title and Indexes of Vol. VIII.—*From H. M. the King of the Netherlands.*

Proceedings of the Geological Society of London. Vol. IV. Part 2. Nos. 99, 100. 1843, 1844. 8vo.—*From the Society.*

List of the Geological Society of London, March 1, 1845. 8vo.—*From the same.*

Map of New York Bay and Harbour, and the Environs. Founded upon a Trigonometrical Survey, under the direction of F. R. Hassler. Triangulation by James Ferguson and Edmund Blunt. The Hydrography under the direction of T. R. Gedney. The Topography by C. Renard, T. A. Jenkins, and B. F. Sands. Published in 1845. Alexander D. Bache, Superintendent Coast Survey.—*From the U. S. Treasury Department.*

The African Repository and Colonial Journal. Vol. XXI. July, 1845. No. 7. 8vo.—*From the American Colonization Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. May and June, 1845. No. 9. 8vo.—*From the Academy.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XIX. July, 1845. Vol. X. 8vo.—*From the Editor.*

The Medical News and Library. Vol. III. July, 1845. No. 31. 8vo.—*From Messrs. Lea & Blanchard.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Elfde Deel. 3e en 4e Stuk. 1844. 8vo. Twaalfde Deel. 1 Stuk. 1845. 8vo.—*From the Editors.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. X. July, 1845. No. 1. 8vo.—*From Dr. R. M. Patterson.*

Observations on the Means of forming and maintaining Troops in Health in different Climates and Localities. By Assistant Surgeon Edward Balfour. Madras. 8vo.—*From Joseph Hume, M.P.*

Description of the Teeth of a New Fossil Animal, found in the Green Sand of South Carolina. By Robert W. Gibbes, M.D. From the Proceedings of the Academy of Natural Sciences. 8vo.—*From the Author.*

The Merchants' Magazine for May, 1845. No. 5.—*From Henry C. Carey, Esq.*

Mr. Beck stated, that during thirty-six years, his thermometer had never reached within five degrees of its late height;

the same thermometer had been used during this time, and had been for six years in the same place: the thermometer was within the house, and had this summer reached 96° and 97°. He believed it to have been the warmest period within his recollection.

Mr. G. W. Smith cited several years in which the temperature had been very high.

Dr. Patterson remarked, that Mr. Bull had just mentioned to him that he had, in 1818, carefully examined a thermometer fairly placed in the shade, and found it to rise, on three successive days, to 103°. Dr. P. also mentioned, that upon the occasion of an alteration in the University buildings in this city, while the workmen were busy upon the roof, he had the curiosity to take a thermometer to the roof, where he found that the temperature was 137°. Upon a dark gravelly soil at the University of Virginia, he found the temperature between 160° and 170°.

Dr. Coates mentioned some experiments, tried by wrapping a thermometer bulb in black wool, and exposing it to the sun's rays: he succeeded several times in raising the temperature to 130°, and once to 142°. He also put the thermometer, wrapped in black wool, in a window with inside shutters, and with a westwardly exposure; at about 4 o'clock, P. M., the temperature rose to 172°.

In consequence of the want of a sufficient number of members, no ballotting for candidates for membership took place.

Dr. Patterson, from the Committee appointed to consider the application of the Councils and the County Board, for the purchase of the Hall, stated, that one of the members of the Committee was absent from the city, and asked that another member be added to that Committee, which was granted, and Mr. Ord was appointed upon the Committee.

Stated Meeting, August 15.

Present, nineteen members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Royal Society of Sciences of Copenhagen, dated Copenhagen, 9th April, 1844, transmitting donations, and acknowledging the receipt of Transactions and Proceedings of the Society:—

From the Holland Society of Sciences at Harlem, dated Harlem, 21st November, 1842, accompanying a donation, and acknowledging the receipt of Transactions of this Society.

An extract of a letter from the Prince of Canino and Musignano, to the Librarian, was read, dated Rome, 12th July, 1845, expressing his acknowledgments to the Society for the honour conferred upon him, in having been chosen as the representative of the Society at the Seventh Congress of the Italian Association, to be held at Naples in September next.

Letters were further received and read:—

From Mr. Irwin, Minister from the United States at Copenhagen, dated Copenhagen, 1st December, 1844, announcing the transmission of a donation from Prof. Abrahams, of the University of Copenhagen: and,—

From Mr. John B. Sartori, dated Leghorn, 29th April, 1845, on transmitting a piece of what he terms "Fixed Mercury," the secret of which he possesses, and suggesting to the Society the propriety of encouraging the operation, which, he thinks, may be an object of very great importance to the Mint of the United States to possess; and offering to dispose of the secret to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Det Kongelige Danske Videnskabernes Selskabs Naturvidenskabelige og Mathematiske Afhandlinger. Tiende Deel. Copenhagen, 1843. 4to.—*From the Royal Society of Sciences of Copenhagen.*

Oversigt over det Kgl. Danske Videnskabernes Selskabs Forhandlinger og dets Medlemmers Arbeider i Aaret, 1843. Copenhagen, 1844. 8vo.—*From the same.*

Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. Tweede verzameling. 2e Deel. 3e Deel, 1e Stuk. Haarlem, 1842—1844. 4to.—*From the Hollandish Society of Sciences.*

Transactions of the American Ethnological Society. Vol. I. New York, 1845. 8vo.—*From the Society.*

The African Repository and Colonial Journal. Vol. XXI. August, 1845. No. 8. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute. Aug. 1845. No. 2. 8vo.—*From Dr. R. M. Patterson.*

The Medical News and Library. Vol. III. Aug. 1845. No. 32. 8vo.—*From Messrs. Lea & Blanchard.*

Description des Manuscrits Français du Moyen Age de la Bibliothèque Royale de Copenhague, précedée d'une Notice Historique sur cette Bibliothèque. Par N. C. J. Abrahams. Copenhague, 1844. 4to.—*From the Author.*

Moïse de Khorène auteur du Ve Siècle. Histoire d'Armenie. Texte Arménien, et Traduction Française par P. E. Le Vaillant de Florival. Venesè, 1841. Two Vols. in One. 8vo.—*From John P. Brown, Esq.*

Considerations respecting the Recognition of Friends in another World: on the Affirmed Descent of Jesus Christ into Hell: on Phrenology in connexion with the Soul, and of the Existence of a Soul in Brutes. By John Redman Coxe, M.D. Philadelphia, 1845. 8vo.—*From the Author.*

An English and Chinese Vocabulary, in the Court Dialect. By S. Wells Williams. Macao, 1844. 8vo.—*From the Author.*

An Anglo-chinese Calendar for the Year 1844, corresponding to the Year of the Chinese Cycle Era 4481, or the 41st Year of the 75th Cycle of Sixty; being the 24th Year of the Reign of Taukwang. Macao, 1844. 8vo.—*From the same.*

The Treaty of Nanking, signed Aug. 29, 1842: and the Supplementary Treaty, signed Oct. 8, 1843. In the Chinese and English Languages. Macao, 1844. 8vo.—*From the same.*

A List of the Plants growing spontaneously in the Vicinity of Quincy, Florida. By A. W. Chapman, M.D. From the Western

Journal of Medicine and Surgery. Vol. III. No. 6. New Series.—*From C. W. Short, M.D. of Louisville.*

Perpetual Calendar, Civil and Ecclesiastical, freed from Dominical Letters, Solar Cycle, Golden Numbers, Extended Tables of Epacts and Algebraic Formulæ. By William M'Ilvaine. Burlington, N. J. 1844. Six Copies.—*From the Author.*

Atlas von 19 Zeichnungs Tafeln zur Darstellung der Baltimore-Ohio Eisenbahn untersucht von Carl Ghega, Doctor der Mathemalik Auf seiner Reise in den Vereinigten Staaten von Nord America. 1844. Folio.—*From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 538 to 541. Title and Index to Vol. XXII. 4to.

DONATION TO THE CABINET.

A Specimen of Metal, said to be Fixed Mercury, but which proved to be Spelter.—*From John B. Sartori, Esq., of Leghorn.*

The Committee appointed on Mr. Hamilton's paper on the Prevailing Winds observed at Fort Union, Upper Missouri: the Committee appointed on Mr. Gillis's paper on Barometric and Thermometric Means, &c.: and the Committee appointed 18th August, 1843, on Mr. Lea's paper on Shells, were, on motion, discharged.

The list of the Committees on obituary notices was read.

Dr. Patterson announced the death of Mr. Joseph Cloud, long a member of this Society, in his 75th year.

On motion, Mr. Eckfeldt was appointed to prepare an obituary notice of Mr. Cloud.

Mr. M'Ilvaine made a communication upon the subject of the calendar presented by him to the Society this evening, entitled, "Memoir Explanatory of a Perpetual Calendar, Civil and Ecclesiastic, freed from Dominical Letters, Solar Cycle, Golden Numbers, Extended Tables of Epacts, and Algebraic Formulæ;" which was referred to a Committee, consisting of Dr. Patterson, Professor Frazer, and Mr. Walker.

A communication was read from Mr. Charles Miner, on the subject of the progressive advancement of the Rocky Mountain Swallow into this State and elsewhere, and suggesting in-

quiries to trace the progress and annual advance of the bird, its brumal retreat, &c.

Mr. Ord stated, that the bird referred to by Mr. Miner had been known for years, and had been described and figured in the Prince of Canino's additions to Wilson, as well as in Mr. Audubon's works. It has been seen for many years at Lambertsville, on the Delaware, where it annually breeds, and has been gradually advancing eastward from the Missouri.

Mr. Trego referred to cases in which the bird had been seen in various parts of Eastern Pennsylvania; and at Bellefonte, in the central part of the State, in great numbers.

Dr. Patterson called attention to a work on the Trigonometrical Survey of India, commenced by Lieut. Col. Lambton, and continued by Col. Everest, and gave a detailed account of the same, explaining the mode in which the survey had been accomplished. Col. Everest is now on a visit to this country, and had sent the work laid before the Society by Dr. P. by Assistant Surgeon E. K. Kane, of the Navy, who had recently returned from the east.

The allusion to Dr. Kane gave occasion to the reading of an extract of a letter from him to Mr. J. K. Kane, dated at Thebes, May, 1845, in which he refers to his own observations in the Nile Valley, but especially to the ardent and important labours of Dr. Lepsius, now occupied in archaical investigations there.

Mr. Eckfeldt stated, that he had examined the specimen sent to the Society by Mr. Sartori, and could not observe a trace of mercury. He considered it to be zinc, containing small quantities of lead and other metals. Its specific gravity was 7.05.

On motion, the Committee on Finance were discharged from the further consideration of a letter from Mr. Smith, on the subject of taxes on the Museum property, referred to them on 15th December, 1843.

On motion, the Librarian was discharged from the further consideration of the subject of the instruments lent to the late Mr. Hassler, referred to him 15th December, 1843.

On motion, the Committee appointed to take charge of the

interests of the Society involved in a claim asserted by the City Councils, were excused from reporting thereon until further ordered.

On motion of Dr. Patterson, the Corresponding Secretary was directed to return an answer to the letter of Mr. Sartori.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. SEPT.—DEC. 1845. No. 34.

Special Meeting, September 5.

Present, twenty-eight members.

Dr. FRANKLIN BACHE, Vice-President, in the Chair.

The Vice-President announced that the meeting had been called in consequence of certain legal proceedings taken against the Society.

On motion, the subject was referred to a Committee, consisting of Messrs. T. I. Wharton, Mr. Williams, Mr. Kane, Mr. C. C. Biddle, and Mr. Vanderkemp, who were authorized to take such steps as might seem to them conducive to the interests of the Society.

Stated Meeting, September 19.

Present, thirty members.

Dr. FRANKLIN BACHE, Vice-President, in the Chair.

Letters were announced and read:—

From the Royal Astronomical Society, dated London, 4th June, 1845: the Royal Asiatic Society, dated London, 19th April, 1845: the Linnæan Society, dated London, 4th June, 1845: respectively acknowledging the receipt of Vol. IV. Nos. 30, 31, of the Proceedings, and of Dr. Dunglison's Address in Commemoration of Mr. Du Ponceau: and,—

From Dr. Beck, of Albany, dated Albany, 12th September, 1845, expressing a desire to procure for the Library of the State of New York, certain missing numbers of the first volume of the Proceedings of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society of London. Vol. VI. Nos. 12 to 17, inclusive. Jan. 10 to June 13, 1845. 8vo.—*From the Society.*

Transactions of the Geological Society of London. Second Series. Vol. VII. Parts 1 and 2. 1845. 4to.—*From the Society.*

Proceedings of the Geological Society of London. Session 1844, 1845. Vol. IV. Part 2. No. 101. 8vo.—*From the same.*

The Journal of the Royal Geographical Society of London. Vol. XV. Part 1. 1845. 8vo.—*From the Society.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland. No. XVI. Part 1. London, 1845. 8vo.—*From the Society.*

Transactions of the Royal Society of Edinburgh. Vol. XVI. Part 1. 1845. 4to. Vol. XVII. Part 1, containing the Makerstoun Magnetical and Meteorological Observations for 1841 and 1842. 1845. 4to.—*From the Society.*

Proceedings of the Royal Society of Edinburgh. Vol. II. 1844–5. Nos. 25 and 26. Title, Contents and Index of Vol. I. 8vo.—*From the same.*

The Transactions of the Royal Irish Academy. Vol. XX. Dublin, 1845. 4to.—*From the Academy.*

Reports of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, for the Years ending August, 1842, 1843, and 1844. 8vo.—*From the Society.*

Annales des Mines. Quatrième Série. Tome VI. V^e^ et VIe Livraisons de 1844. 8vo.—*From the Engineers of Mines.*

Journal Asiatique, ou Recueil de Mémoires d'Extraits et de Notices Relatifs à l'Histoire, à la Philosophie, aux Langues et à la Littérature des Peuples Orientaux. Quatrième Série. Tome IV. No. 20. Décembre, 1844. Tome V. Nos. 21 à 23. 1845. 8vo.—*From the Society.*

Bulletin de la Société de Géographie. Troisième Série. Tome Deuxième. Paris, 1844. 8vo.—*From the Society.*

Report of the Fourteenth Meeting of the British Association for the Advancement of Science; held at York, in September, 1844. London, 1845. 8vo.—*From the Association.*

Account of the Northumberland Equatoreal and Dome, attached to the Cambridge Observatory. By G. R. Airy, Esq., M.A., Astronomer Royal. Cambridge, 1844. 4to.—*From H. G., the Duke of Northumberland.*

The African Repository and Colonial Journal. Vol. XXI. September, 1845. No. 9. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. III. September, 1845. No. 33. 8vo.—*From Messrs. Lea & Blanchard.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. X. September, 1845. 8vo.—*From Dr. R. M. Patterson.*

On the Liquefaction and Solidification of Bodies generally existing as Gases. By Michael Faraday, Esq., F.R.S. From the Philosophical Transactions. Part 1, for 1845. London, 1845. 4to. *From the Author.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. II. No. 9. July, 1845. 8vo.—*From the Editor.*

On the Transport of Erratic Blocks. By William Hopkins, M.A., F.R.S., &c. From the Transactions of the Cambridge Philosophical Society. Vol. VIII. Part 2. 4to.—*From the Author.*

Four Letters on the Motion of Glaciers. By William Hopkins, Esq., &c. From the London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. Vol. XXVI. London, 1845. 8vo.—*From the Author.*

Bulletin Polytechnique, Revue des Sciences Exactes, de leurs applications et de leur Enseignement, etc. etc. Par Auguste Blum et autres. Tome 1er. No. 1. Janvier, 1845. 8vo.—*From D. B. Warden, Esq.*

The American Journal of Science and Arts. Conducted by Prof. Silliman and Benjamin Silliman, Jr. Vol. XLIX. No. 1. July, 1845. 8vo.—*From the Editors.*

Report of the Secretary of the Navy, communicating a Report of the Plan and Construction of the Depôt of Charts and Instruments, with a Description of the Instruments, &c. February 18, 1845. Read to Senate. 28th Congress, 2d Session. Doc. No. 114. 8vo.—*From Lieut. Gilliss.*

The Principles of the Differential and Integral Calculus: and their

application to Geometry. By Washington M'Cartney, Esq. Philadelphia, 1844. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Histoire Naturelle des Poissons. Par M. le Baron Cuvier et M.A. Valenciennes. Tome Dix-septième. Paris 1844. 4to. Blanches. No. 456 à 487.

Annales de Chimie et de Physique. Troisième Série. Année 1844–5. Tomes X. XI. XII. XIII. XIV. No. for May. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XX. Nos. 1 to 24, inclusive. Paris, 1845. 4to.

Astronomische Nachrichten. Nos. 542, 543, 544. 4to.

The Committee to whom was referred Mr. M'Ilvaine's Memoir upon a New Civil and Ecclesiastical Calendar, reported in favour of its publication in the Transactions, which, upon motion of Mr. Kane, was ordered accordingly.

Mr. M'Ilvaine's Calendar consists of a central column headed "Eras," accompanied by two series of secular equations, by means of which, and of two small ancillary tables, he has been enabled to reduce to identical terms, his formulæ for finding in both styles and through a vast range of time, the day of the week in the Civil Calendar, and the Annual Epact, with Easter deduced from it, in the Ecclesiastical. After noticing the simplifications of the Calendar, effected within the last half century by the analytical methods of Gauss and Delambre, Mr. M'Ilvaine proceeds to demonstrate the rule of his own Civil Calendar, and to explain the principles upon which Table B, containing numbers for the respective months, was formed. Having thus proved that no necessity exists for the use of Dominical letters in the Julian Calendar, since the same object may be attained in an easier way through the Solar Equation 5, standing in column A, opposite to the Julian Era, he goes on to show that, with the aid of table B, a similar device may be equally well adapted to the Gregorian Era.

The first step in the reformation of the Julian Calendar, in 1582, consisted in the suppression of 10 days in that year, by calling the day, which, in the old style, was the 5th of October, the 15th of October in the new. Now the Julian 5th of October, 1582, will be shown by the Calendar to have been Friday, and the 15th, conse-

quently, Monday; and, as the series of days of the week was not interrupted, nor intended to be, by the reform, in order to make the 15th of October, in the new style, coincide with Friday, it is obvious that we must go back three days; that is, we must subtract 3 from the Julian Solar Equation 5, leaving 2, which will thus become the Gregorian Solar Equation for the remainder of the 16th century. This equation would suit all succeeding centuries, were it not for the second step taken at the reformation, of directing that after 1600, which continued bissextile in both Calendars, every succeeding hundredth year, whose centurial figures were not divisible by four, without a remainder, should cease to be leap years.

As each of the years, 1700, 1800, and 1900, loses consequently a day, the number expressive of the solar equation is diminished by one at each change of the centurial figure: but for 2000, and for every succeeding 400th year, whose centurial figures are divisible by four without a remainder, the equation continues, like that of 1600, the same as the preceding one, and these years only are marked on the civil side of the column of Eras with an asterisk.

Thus column A, consisting of fewer figures (and these symmetrically disposed in a cycle of 7,) than have ever been used in constructing any table of Dominical letters for *either* style, completes a Civil Calendar of simple form, and unlimited extent. In the present century, whose solar equation is 0, the computation will be found particularly easy.

Mr. M'Ilvaine then proceeds to explain the construction of the Ecclesiastical side of his Calendar, and the means which he adopted for connecting it with Table B of the other side, as well as for making a single additional column C, serve as a convenient substitute for the Extended Table of Epacts now in use.

From the descriptions given in Mr. Galloway's article on the Calendar, in the seventh edition of the Encyclopedia Britannica, and in one, by Lord Macclesfield, published in the Philosophical Transactions for 1750, Mr. M'Ilvaine inferred, that the golden numbers, as *remainders*, on division by 19 of the year plus 1, might be dispensed with, and their place, in computation, conveniently supplied by adding to 11 times the year, the 19th part of the year used as a *quotient*, or whole number, (taking care only that when the year happens to be a multiple of 19, one less than the 19th part shall be added,) and then rejecting thirties from the sum. This easy formula, equivalent to the rule at the head of the tablet, yielded him, without a failure, the constantly recurring 19 epacts that mark the Julian Calendar. Now

PERPETUAL CALENDAR,

CIVIL AND ECCLESIASTICAL,

Freed from Dominical Letters, Solar Cycle, Golden Numbers, Extended Tables of Epacts and Algebraic Formulæ. By Wm. M'Ilvaine, Burlington, N. J. 1844.

RULE.

To find on what day of the week a given day of the Month falls in any Year after CHRIST, to the end of Time.

Add to the Year
its **4**th part (omitting fractions),
the Eq. in col. **A** beside the Era,
the No. of the Month in Table **B**,
and the Day of the Month.
(or the excess over 7s in the Day of the Mo.)

Divide the Sum by 7,

The Excess over **7**s, calling **0** always **7**, will be the Day sought, viz.

The **1**st, **2**d, **3**d, **4**th, **5**th, **6**th, **7**th,
Being **Su. M. Tu. W. Th. Fr. S.**

Except in January and February of Leap Yrs, when the *preceding* will be the true day.

All JULIAN Years full **4**s are Leap Years. GREGORIAN full **4**s are also Leap Years, *unless* their two right hand figs. be **00** joined with left hand figs. not full **4**s.

TABLE **B.**
Of Months.

		Feb.		
1st Quarter	Jan.	**0**	**3**	**3** Mar.
2d „	April.	**6**	**1**	**4** June.
3d „	July.	**6**	**2**	**5** Sept.
4th „	Oct.	**0**	**3**	**5** Dec.
		Nov.		

The No. for *each* Month in Table **B.** is the number of days beyond full weeks in *all* the Months which precede it from the beginning of a Common Year.

The order and position of the figs. **3, 6, 5,** (the number of days in a Common Year,) and of **1, 2, 3, 4, 5,** in the space between them, may recall to memory the whole Table.

Solar Equation.	ERAS	Lunisolar Equation.
A	**Julian**	**C**
5	After Christ.	0
	Gregorian, From 1582.	
	Centurial Figures.	
2	**15**	1
2	* **16**	1
1	**17**	0
0	**18** *	0
6	**19**	29
6	* **20**	29
5	**21** *	29
4	**22**	28
3	**23**	27
3	* **24** *	27
2	**25**	27
1	**26**	26
0	**27** *	26
0	* **28**	26
6	**29**	25
5	**30** *	25
4	**31**	24
4	* **32**	24
3	**33** *	24
2	**34**	23
1	**35**	22
1	* **36** *	23
0	**37**	22
6	**38**	21
5	**39** *	21
5	* **40**	21
4	**41**	20
3	**42**	19
2	**43** *	19
2	* **44**	19
1	**45**	18
0	**46** *	18
6	**47**	17
6	* **48**	17
5	**49** *	17
4	**50**	16
3	**51**	15
3	* **52** *	15
2	**53**	15
1	**54**	14
0	**55** *	14
0	* **56**	14
6	**57**	12
5	**58** *	13
4	**59**	12
4	* **60**	12
3	**61** *	12
2	**62**	11
1	**63**	10
1	* **64** *	11

RULE.

To find the Calendar-Moon's Age on the 1st day of January in any Year, from the beginning of the CHRISTIAN ERA.

Add to ten times the Year,
the Year,
† its **19**th part (omitting fractions),
and the Eq. in col. **C,** beside the Era.
† (But if no fraction add 1 less than the 19th part.)

Divide the sum by 30,

The Excess over 30s. calling **0 = 30,** will be the Age sought, or *Annual Epact*

To find EASTER,
Subtract any
EPACT,

Gregorian.		Julian.		The Diff will be the DAY of the MONTH on which occurs the PASCHAL TERM.
Between	From	Between	From	
1 & 12	13	1 & 4	5	in April.
13 & 23	44	5 & 15	36	in March.
‡25 & 30	43	17 & 28	35	in April.
24	42	29	31	in April.

‡ 25 also from 42. if it is getting a 19th of the year, the Rem. exceed 10.

—— This is the Epact 25 of the Tables in the Article "Calendar" Encyclopedia Britannica, 7th Edition.

Then find by the CIVIL CALENDAR the Day of the Week on which *that* Day of the Month falls, and the following Sunday will be EASTER SUNDAY.

The number of days to be counted forwards will be shown by subtracting *the Day of the Week* thus found, from 8.

EXAMPLES.

What Day of the Week was April 2d, A. D. 326.	*Required Easter, A. D. 326.*	*What Day of the Week will be March 22d, A. D. 1845.*	*Required Easter, A. D. 1845.*
4) 326	3260	4) 1845	18450
81	19) 326	461	19) 1845
A 5	17	**A** 0	97
Mo. 6	**C** 0	Mo. 3	**C** 0
Day 2			
7) 420	30) 3603	*Day* 22	30) 20392
60	120		679
Remainder 0	*Rem. or Epact* 3	7) 2331	*Epact* 22
or 7	*Taken from* **5**	333	*From* **44**
Answer, Sat.	Term *April* 2	*Remainder* 0	Term *March* 22
Thence	*to Sunday* 1	*or* 7	
	Ans. April 3	*Answer, Sat. thence*	*to Sunday* 1
			Ans. March 23

Rule proved by examples from De Morgan.
See British Almanac and Companion for 1845.

Julian Yr.	**Easter.**	**Gregorian Yr.**	**Easter.**
4) 1639	16390	4) 4610	46100
409	19) 1639	1152	19) 4610
A 5	86	**A** 0	242
Mo. 6	**C** 0	Mo. 6	**C** 18
Day 10		Day 13	
7) 2069 Rr.	30) 18115	7) 5781 Rr.	30) 50970
Wed'y. 4	Epact 25	Friday 6	Epact 30
	From **35**		From **43**
From 8	Term April 10	From 8	Term April 13
4 . . to Sunday 4		2 . . to Sunday 2	
Same Answer, April 14		Same Answer, April 15	

Rule proved by examples from Delambre.
See Conn. des Tems for 1817, and Hist. de l'Astron. Mod.

Julian Yr.	**Easter.**	**Gregorian Yr.**	**Easter.**
4) 4763	47630	4) 3909	39090
1190	19) 4763	977	19) 3909
A 5	250	**A** 5	205
Mo. 6	**C** 0	Mo. 6	**C** 21
Day 12		Day 17	
7) 5976 Rr.	30) 52643	7) 4914 Rr.	30) 43225
Thursday 5	Epact 23	Sat. 0 = 7	Epact 25
	From **35**		From **42**
From 8	Term April 12	From 8	Term April 17
3 . . to Sunday 3		1 . . to Sunday 1	
Same Answer, April 15		Same Answer, April 18	

obtaining in this way the Julian epact for 1582, and advancing the epacts by a unit, which is equivalent to the tabular arrangements made at the transition to the Gregorian Calendar in that year, the first equation of column C becomes 1. From this the succeeding equations of that column were derived, as follows: Every centurial figure, at which, in successive periods of 25 centuries, (beginning at 1800, 4300, 6800, &c.,) the epact is, according to the Gregorian law, to be increased by a unit—a correction which occurs at the end of every 300 years, seven times in succession, and then once at the end of 400 years (making 8 corrections in the course of 2500 years)—was marked with an asterisk. Then descending, century by century, in the central column of eras, the equation in column C was kept the *same*, wherever an asterisk is met with on *either* side. The last equation was *diminished* by 1 whenever there was *no* asterisk, and *increased* by 1 whenever the asterisk appeared on *both sides*, limiting the series by the cycle of 30, and considering 30 as always equivalent to 0.

The epacts obtained by means of the table thus formed, and the rule, Mr. M'Ilvaine found to be in exact correspondence with those set down in the Extended Tables of Epacts given in the ordinary treatises upon the Calendar.

Mr. M'Ilvaine then explains his method of obtaining, in the table for finding Easter, *four* fixed numbers in each Calendar, by means of which he arrives at once at the Paschal term, or day of the month in March or April, on which Easter Sunday depends. The day of the week corresponding to this is then to be found by the Civil Calendar, and the succeeding Sunday is, of course, Easter Sunday.

Mr. Kane announced to the Society the death of the Honourable Joseph Story, who died at Cambridge, Mass., on Wednesday, 10th September, 1845, in the 65th year of his age.

On motion of Mr Kane, Mr. William Rawle was appointed to prepare a necrological notice of Judge Story.

Mr. T. I. Wharton, from the Committee on the Claim of the executors of the late Mr. Nathan Dunn, reported.

On motion of Dr. Patterson, the Committee was continued without being required to report until specially ordered.

Stated Meeting, October 3.

Present, fourteen members.

Dr. Franklin Bache, Vice-President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings connected with the Magnetical and Meteorological Conference, held at Cambridge, in June, 1845, during the meeting of the British Association for the Advancement of Science. London, 1845. 8vo.—*From the British Association.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Uitgegeven door J. van der Hoeven, M.D., en W. H. de Vriese, M.D. Twaalfde Deel, 2e Stuk. Leiden, 1845. 8vo.—*From the Editors.*

Medical Notes and Reflections. By Henry Holland, M.D., F.R.S., &c. Second edition. London, 1840. 8vo.—*From the Author.*

An Essay, Literary and Practical, on Inversio Uteri. By John Green Crosse, M.D., F.R.S., &c. Part the First. London, 1845. 8vo.—*From the Author.*

Die Baltimore-Ohio-Eisenbahn über das Alleghany-Gebirg mit besonderer berüchsichtigung der Steigungs-und Krümmungsverhältnisse untersucht von Carl Ghega. Auf seiner reise in den Vereinigten Staaten von Nord-Amerika. Wien, 1844. 8vo.—*From the Author.*

Report on the State of the Lying-in Hospitals in Europe, to the Managers of the Preston Retreat, and to the Obstetrical Committee of the College of Physicians. By James Bryan, M.D. Philadelphia, 1845. 8vo.—*From the Author.*

An Elementary Treatise on Astronomy. By William A. Norton, A.M. Stereotype edition. Corrected, improved, and enlarged. New York, 1845. 8vo.—*From the Author.*

Dr. Patterson drew the attention of the members to the Hydro-electrical Machine now being exhibited in the city.

Stated Meeting, October 17.

Present, twenty-six members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were announced and read:—

From the Royal Society of London, dated London, June, 1845, acknowledging the receipt of the Proceedings of this Society, Nos. 30 and 31; and of Dr. Dunglison's discourse on Mr. Du Ponceau: and,—

From Dr. T. R. Beck, the Secretary of the Regents of the University of the State of New York, dated Albany, 13th October, acknowledging the receipt of Nos. 1 and 3, of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London, for the year 1845. Part I. London, 1845. 4to.—*From the Royal Society.*

List of the Royal Society of London. 30th November, 1844. 4to. *From the same.*

Proceedings of the Royal Society. 1844. No. 60. 8vo.—*From the same.*

Astronomical Observations made at the Royal Observatory, Greenwich, in the Year 1843; under the direction of George Biddell Airy, Esq., M.A., Astronomer Royal. Published by order of the Board of Admiralty, in obedience to Her Majesty's command. London, 1845. 4to.—*From the same.*

Reduction of the Observations of Planets, made at the Royal Observatory, Greenwich, from 1750 to 1830; computed by order of the Lords Commissioners of the Treasury, under the superintendence of George Biddell Airy, Esq., M.A., Astronomer Royal. Published by order of the Lords Commissioners of the Admiralty. London, 1845. 4to.—*From the same.*

Annuaire Magnétique et Météorologique du Corps des Ingénieurs des Mines de Russie, ou Recueil d'Observations Magnétiques et Météorologiques faites dans l'étendue de l'Empire de Russie, et publiées par ordre de S. M. l'Empéreur Nicolas I. aux frais de la

direction générale des Mines, par A. T. Kupffer. Année, 1842. En 2 parties. St. Pétersbourg, 1844. 4to.—*From the Imperial Administration of Mines, Russia.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. 20. New Series. October, 1845. 8vo.—*From the Editor.*

The Medical News and Library. Vol. III. October, 1845. No. 34. 8vo.—*From Messrs. Lea & Blanchard.*

The African Repository and Colonial Journal. Vol. XXI. October, 1845. No. 10. 8vo.—*From the American Colonization Society.*

On the Heat of Vapours. By Sir J. W. Lubbock.—*From the Author.*

A Paper on the Patent Azimuth and Steering Compass, invented by Edward J. Dent, F.R.A.S. Presented to the meeting of the British Association for the Advancement of Science, at York. London, 1844. 8vo.—*From the Author.*

Bibliotheca Americana, being a choice collection of Books relating to North and South America, and the West Indies, including Voyages to the Southern Hemisphere. Paris, 1840. 8vo. This is the catalogue of Mr. Warder's Books, which were purchased for the New York State Library.—*From the Regents of the University of New York.*

Illustrations of the Geology of Yorkshire; or a Description of the Strata and Organic Remains of the Yorkshire Coast: accompanied by a Geological Map, Sections, and Plates of the Fossil Plants and Animals. By John Phillips, F.G.S., &c. &c. York, 1829. 4to.—*From Alfred Cope, Esq.*

Remarks on Prisons and Prison Discipline in the United States. B. D. L. Dix. Boston, 1845. 8vo.—*From the Philadelphia Prison Society.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Scientific Memoirs, selected from the Transactions of Foreign Academies of Science and Learned Societies. Edited by Richard Taylor, F.S.A., &c. Vol. IV. Part XIII. November, 1844. Part XIV. August, 1845. 8vo.

The list of Standing Committees on subjects of Science, was read.

The Committee on a communication of Mr. Borden, appointed 6th January, 1843, was, on motion, discharged.

On motion, Professor Vethake was excused from the duty assigned him of preparing an obituary notice of the late Mr. Nicklin.

The list of outstanding Committees on obituary notices, was read.

Dr. Patterson laid before the Society sundry specimens of dollars found in the wreck of the San Pedro, destroyed by fire, thirty years ago, off the coast of Venezuela. He read the following note by Mr. Du Bois.

Early in 1815, a naval armament was fitted out in Spain, by Ferdinand VII., for the purpose of reducing the rebellious colonies in South America. The military force of this expedition amounted to 10,000 men, of whom 2000 were on board the flag-ship San Pedro. This vessel was also freighted, to a large amount, with gunpowder, cannon balls, and specie. The fleet touched at the island of Margueríta, near the coast of Venezuela, where, with a variety of other plunder, the San Pedro took on board eight casks of spirits. Having left the island, and making for the main land, which was within six hours' sail, the vessel was discovered to be on fire. The flame, however, was in a fair way of being extinguished, when the steward incautiously opened one of the vessels containing ardent spirits to refresh the hands. The fire, by some accident, came in contact with the rum, and instantly the flames spread so far as to become unmanageable. The ship burnt four hours, until the powder magazine was reached by the fire, when an explosion took place, and the wreck went down, involving in its destruction the lives of 400 men.

The right of working the wreck having not long since been granted by the government of Venezuela to a company of gentlemen in Baltimore, designated as the "San Pedro Company," measures were taken to recover the specie, and other valuables known to have been on board, and a vessel, with diving-bell and workmen, was sent out in February last. The wreck was found sunk in 60 feet water, and 4 or 5 miles from the main land. It was also found that the vessel had rested on a hard bed of coral; on this, (subsequently to the catastrophe,) a layer of thick mud was deposited; and over this was grown another stratum of coral, which has to be pierced to arrive at the remains of the ship.

The diving-bell (which is 5 feet diameter and 5 feet high) is sent

down three or four times a day, with two labourers, who remain down about two hours at a time. During the past season they have brought up a quantity of copper, in various shapes, besides cannon-balls, &c.; and Spanish dollars, the recoinage of which at the Mint has produced about $18,500. The silver has been much corroded by the action of *sulphur*, which is supposed to have occurred from the usual precaution of placing the specie in the powder magazine. This has occasioned a diminution in value of 7 or 8 per cent., that is, the dollars average 92 or 93 cents each; but the *variation* of loss is very great, as some are found worth 98 cents, and one, with the stamps still visible, was reduced to 34 cents in value. They are all too much spoiled for currency, though in most cases the impressions are very distinct.

The cannon-balls and grape-shot are highly oxidized, and are curious from having lost so much in weight; the shot herewith shown, being 2 inches in diameter, must have originally weighed just 18 ozs. avoirdupois. It now weighs $7\frac{1}{10}$ ozs. In other terms, its specific gravity has been reduced from about 7.168 to 2.830, by lying 30 years in the ocean.

(Note.—By calculation, if 18 ozs. be reduced to $7\frac{1}{10}$, 7.168 falls to 2.832, which closely confirms the experiment.)

The above facts were obtained in a conversation with Mr. Gordon, the President of the Company, who kindly placed these specimens in the Mint cabinet.

Assay Office, U. S. Mint, October 16, 1845.

N. B. To bring the dollars into a condition fit for deposit at the Mint, the incrustation upon them, consisting of shelly and earthy matter, combined with sulphuret of silver, is first removed. A considerable quantity of this coating has been reduced into metallic silver at the Mint, yielding 38 per cent. in silver. The crusts of black sulphuret, comparatively free from shell, yield 70 per cent. The average value of the dollars, with this taken into account, is about 94 cents.

Whether the dollars would have suffered so much by the mere action of sea-water, is open to inquiry. The loss in this instance is clearly due to the attacks of sulphur, most probably from the gunpowder. No muriate of silver was found in the analysis.

Mr. C. M'Euen exhibited to the Society an engraved Revolving Table, intended to show approximately the time of the meridian passage of a star.

He also exhibited a series of curves laid down from the observations of Dr. Hewson, printed in the Transactions of this Society, showing the extreme and mean temperatures at Philadelphia, for a period of ten years.

He also exhibited tables of the same, for a period of thirteen years, by an unknown observer; and remarked that these did not agree with the others, and from certain evidence contained in them, he suspected that the thermometer observed had been placed in the house.

Mr. Walker stated on behalf of Mr. Kendall, that on the morning of the 6th of July, they had succeeded in making one observation on Encké's Comet. The difference between its place as observed, and that calculated for it in the Ephemeris, was 20 seconds of space in right Ascension, 10 seconds in Declination.

He also stated, that he had received a letter from Professor Mitchell, of Cincinnati, announcing that he had discovered that Antares in Scorpio is a double star. The companion is at the distance of 1.5 seconds of space from the principal, and the brilliancy of the latter contrasted strongly with the faintness of the other.

The Society then proceeded to the stated business of the meeting, the balloting for new members.

The list of outstanding Committees on business, was read.

The Curators charged, 7th January, 1842, with the duty of receiving the standards of measure, left by Mr. Vaughan to the Society, and to have them placed in suitable cases, were, on motion of Mr. Smith, directed to take immediate steps to obtain these measures.

Dr. Elwyn, as Secretary, stated that he had written to the outstanding Committees on obituary notices.

Dr. Dunglison reported, that he had written to Mr. Sartori, in accordance with the direction of the Society of the 15th of August.

The other business of the meeting having been disposed of, the ballot boxes were opened, and the following gentlemen were declared to be elected members of the Society:—

Wm. B. Carpenter, M.D., F.R.S., of London.

Sir Wm. Jardine, Bart., F.R.S., Ed., of Scotland.

Prof. R. Lepsius, of Berlin.

Stated Meeting, Nov. 7.

Present, twenty members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Central Committee of Statistics of Belgium, dated Brussels, 6th April, 1845:—

From the Minister of Finance of Russia, dated St. Petersburg, 23d October, 1844, respectively announcing donations to the Library:—

From A. T. Kupffer, dated St. Petersburg, 15–27th October, 1844, accompanying a donation to the Library, and asking of the Society to send their publications in exchange:—

From M. Gustave d'Eichthal, dated Paris, 7th July, 1845, announcing a donation to the Society:—

From Col. Jos. G. Totten, dated Washington, 3d November, 1845, announcing a donation to the Society:—

From F. Fraley, Esq., dated Philadelphia, 17th October, 1845, in reference to the obituary notice of Professor Keating: and,—

From Dr. Ducatel, dated Baltimore, 20th October, 1845, asking to be excused from the duty of preparing an obituary notice of the late Mr. Nicollet.

The following donations were announced:—

FOR THE LIBRARY.

Observations made at the Magnetical and Meteorological Observatory, at Toronto, in Canada. Printed by order of Her Majesty's Government, under the superintendence of Lieut. Colonel Edward Sabine, of the Royal Artillery. Vol. I. 1840, 1841, 1842. London, 1845. 4to.—*From the British Government, through the Hon. Edward Everett.*

Statistique de la Belgique. Population. Mouvement de l'Etat Civil pendant l'année, 1843. Publié par le Ministre de l'Intérieure, (M. Nothomb.) Bruxelles, Décembre, 1844. Folio.—*From the Belgium Central Commission of Statistics.*

Annales des Mines. Rédigées par les Ingénieurs des Mines. Qua-

trième Série. Tome VII. 1ere livraison de 1845. 8vo.—*From the Engineers of Mines, Paris.*

Journal Asiatique. Quatrième Série. Tome V. No. 24. Juin, 1845. 8vo.—*From the Asiatic Society of Paris.*

The Twelfth Annual Report of the Royal Cornwall Polytechnic Society, 1844. 8vo.—*From the Society.*

The American Journal of Science and Arts. Vol. XLIX. No. 2. October, 1845. 8vo.—*From the Editors.*

The African Repository and Colonial Journal. Vol. XXI. November, 1845. No. 11. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. III. November, 1845. No. 35. 8vo.—*From Messrs. Lea & Blanchard.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. X. October, 1845. No. 4. 8vo.—*From Dr. R. M. Patterson.*

Papers on Practical Engineering. No. 3. Sustaining Walls: Geometrical Constructions to determine their thickness under various circumstances. Derived chiefly from a Memoir of M. Poncelet, with modifications and extensions, by Lieut. D. P. Woodbury, under the direction of Col. J. G. Totten, Chief Engineer. Washington, 1845. 8vo.—*From Col. Totten.*

The Latitude of Cambridge Observatory, in Massachusetts, determined from transits of stars over the prime vertical, observed during the months of December, 1844, and January, 1845, by W. C. Bond, Major James D. Graham, Geo. P. Bond, and Benjamin Peirce. 4to. Published in the Memoirs of the American Academy, Boston.—*From Major J. D. Graham.*

Études sur l'Histoire Primitive des Races Océaniennes et Américaines. Par Gustave d'Eichthal. Extracted from the Memoirs of the Ethnological Society of Paris. 8vo.—*From the Author.*

A Lithographic impression of the Fossil Animal named Missourium theristocaulodon. Published in Leipzig and Dresden.—*From Dr. Koch.*

ADDITION TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secrétaires perpétuels. Tome XX. Nos. 25, 26. Tome XXI. Nos. 1 to 8, inclusive. 4to.

Astronomische Nachrichten. Nos. 545, 546, 547. 4to.

The Committee on Major Jas. D. Graham's paper, entitled "Observations for the Magnetic Dip, made at several positions, chiefly on the South-Western and North-Eastern frontiers of the United States; and of the Magnetic Declination at two positions on the river Sabine, in 1840, by Major Jas. D. Graham," reported an abstract made by the author, and recommended its publication in the Transactions, which was ordered accordingly.

The observations of the magnetic dip and declination, from the 29th of January to the 5th of June, contained in this paper, were made while Major Graham was attached to the joint commission for the demarcation of that portion of the boundary between the United States and Texas, included between the mouth of the river Sabine and its intersection with the 32° of north latitude. The observations for the dip, subsequent to that period, were made while he was serving as a commissioner on the part of the United States for the survey and exploration of the territory then in dispute with the government of Great Britain upon our north-eastern frontier.

The only apparatus in possession of the commission for the demarcation of the boundary line between the United States and Texas, that could be applied to the determination of the declination, consisted of the surveyor's compasses furnished for the survey, and the needle of a theodolite. Although a good variation transit would have been preferred for this purpose, yet the want of such an instrument was in a great measure compensated for, by the use of three different needles instead of one. These were observed on with the poles direct and then again with the poles reversed. In every instance the errors of the instrument were compensated as far as practicable by noting the readings of both ends of the needles, and by reversing the direction of the vanes of the compasses, and then making another set of readings in the same manner. When the theodolite needle was observed upon, both ends were read before and then again after a reversal by a horizontal motion of the azimuth plate: and a mean of all the separate results was adopted for the correct declination at each station.

The observations for the magnetic dip were made with an instrument constructed by Troughton and Simms, of London, in the year 1838. It was obtained for the commission for the Texan boundary survey, from Messrs. William Bond and Son, of Boston, for whom it was made. The whole instrument is of brass. The azimuth circle is divided by the aid of a vernier to read to minutes. The vertical or

dip circle, is 8 inches in diameter, divided on a silver-washed surface, to read to 15 minutes of arc. But, by the aid of a magnifying lens, the readings may easily be estimated to the nearest two minutes.

In making the observations, the following method was always pursued, viz: Both ends of the needle were read with the face of the dip circle to the east, and also to the west, and with the face or marked side of the needle twice to the east and twice to the west; that is, once each way, by a change of direction of the face of the instrument, and once each way again, by a reversal of the needle on its axis. A mean of all the readings was then taken and noted. The poles of the needle were then changed, and the same course repeated, and a mean of all the readings noted. A mean of these two results was taken for the dip indicated by the needle. The same operation was then performed with the other needle, and a mean of the final results of the two needles was adopted as the magnetic dip for the station.

Care was always taken, in selecting positions for observations, both for the dip and the declination, to have them beyond the reach of influence upon the needles arising from the iron in buildings and from any other local cause. The magnets, all iron or steel belonging to the camp, were always kept remote from the instruments during the observations, and were always sent in a direction east or west (magnetic) of the instrument, in order thus to neutralize all influence upon the needles.

The close coincidence in the results of the two dipping needles, which was still exhibited after the accident by lightning to needle No. 2, described in the memoir, will serve as a striking illustration of the importance of the several reversals of the face of the instrument, of the faces of the needle, by turning their axes end for end, and of the poles. Previous to that accident, the indications of needle No. 2, were quite as uniform throughout its various positions as those of needle No. 1. After the accident, needle No. 2, always exhibited a variation in its extreme indications, arising from change of position, amounting to 10 and sometimes to nearly 12 degrees. Still the mean of all the observations made in the manner described seems to have agreed as well, or nearly as well, as before the accident, with the dip indicated by needle No. 1, which always remained in good order.

The absolute error of needle No. 2, seems to have been constant, or very nearly so, but by the several reversals of position, and of the poles, this error was rendered as often *positive* in its character, as it was *negative*, and was thus neutralized, or very nearly so.

Needle No 2 was observed upon for the last time, at West Point,

N. Y., on the 24th of August, 1840. Its place was afterwards substituted by two other needles, marked No. 3 and No. 4. They were made expressly for Major Graham, by Mr. J. M. Baur, of New York, and are of the acute lozenge shape, very similar in form to No. 2.

The needles were always charged as strongly as practicable, and generally to saturation, both when the poles were direct, and also when reversed. This is an important object in observing the dip, for the stronger the needles are charged with magnetism, the less is the effect of any want of perfect balance, or any imperceptible dust, or other particles which may adhere to them, to deflect them from the true angles of dip.

The localities occupied by the instrument, at the several stations, have been minutely described in the memoir, in order that they may be easily found by future observers, and that an exact comparison of results may be made, and the change of dip, with the lapse of time, be the more accurately ascertained.

The following are results obtained by Major Graham:

At the light-house, at the S. W. pass, mouth of the Mississippi river. Lat. 28° 58′ 50″ N., Long. 89° 21′ 27″ W.

On the 29th January, 1840. Dip 58° 42′.25.

At Dr. Everett's house, near the mouth of the River Sabine, Texas. Lat. 29° 43′ 54″ N., Long. 93° 51′ 30″ W.

On the 11th February, 1840, Dip 58° 33′.65.
On the 28th February, 1840, Dip 58° 32′.1.
On the 19th February, 1840, Declination 8° 40′.1 E.
On the 29th February, 1840, Declination 8° 40′.3 E.

At Gaines' Ferry, on Sabine river, Texas. Lat. 31° 28′ 15″ N., Long. 93° 44′ 31″ W.

On the 28th and 29th May, 1840, Dip 60° 57′.
On the 29th May, 1840, Declination 8° 40′.5 E.

At Polvido's house, on Sabine river, La. Lat. 32° 01′ 01″ N., Long. 94° W.

On the 4th and 5th June, 1840, Dip 61° 36′.8.

At Natchitoches, La.

On the 26th June, 1840, Dip 61° 15.′9.

At West Point, N. Y. Lat. 41° 23′ 25″ N., Long. 74° 01′ W.

On the 24th August, 1840, Dip 73° 20′.09.

At a point 4578 feet due north from the monument at the source of the river St. Croix. Lat. 45° 57′ 23″.6 N., Long. 67° 46′ 45″ W.

On the 18th, 19th and 20th Oct. 1840, Dip 76° 57′.4.

At Parke's Hill. Lat. 46° 06′ 40″ N., Long. 67° 46′ 45″ W.

On the 27th, 28th and 29th Nov. 1840, Dip 77° 02′.5.

The list of outstanding Committees on subjects of science, was read.

The list of Committees on obituary notices, was read.

On motion of Mr. Frazer, Dr. Ducatel was excused from the duty assigned him of preparing an obituary notice of Mr. Nicollet.

On motion of Dr. Dunglison, Col. Abert was appointed to prepare an obituary notice of Mr. Nicollet.

On motion of Dr. Patterson, Dr. Emerson was excused from the duty assigned him of preparing an obituary notice of Mr. Dunn.

On motion of Dr. Patterson, Mr. Eckfeldt was excused from the duty of preparing an obituary notice of Mr. Cloud.

Dr. Dunglison announced the death of the Rev. Dr. Beasley, who died at Elizabethtown, N. J., on Saturday, 1st November, 1845, in the 78th year of his age.

Dr. Bache announced the death of Mr. David B. Warden, at Paris, on the 9th October, 1845.

Also, the death of Mr. Samuel Harrison Smith, at Washington, on the 1st November, 1845, in his 74th year.

On motion of Mr. Kane, Dr. Patterson was appointed to prepare an obituary notice of Mr. Warden.

Prof. Henry, of Princeton, communicated the *result* of a series of experiments on electricity made last winter. They had reference, first, to the discharge of electricity through a long wire, connected with the earth at the farther end: secondly, to the discharge of a jar through a wire: and, thirdly, to an attempt to account for the phenomena of dynamic induction.

Prof. H. first showed, that when a charge of electricity is given to one end of a wire, the different parts of the wire become charged successively, as though a wave of electricity passed along it. He then showed that the charge passed along the surface of the wire, and not through its whole mass, as was supposed from the analogy of galvanic conduction. Hence he inferred that dynamical electricity obeys the same laws as the statical. He then detailed some experiments upon the passage of electricity through plates, and showed that when a charge was transmitted across a plate, the tension was greatest at the edges, the electricity apparently exercising a self-repelling action, while, if the charge were passed through two pieces of tin-foil, these slips attract each other.

Prof. H. believes that it may be justly inferred, from these experiments, that the attraction is due to ponderable matter, while the repulsion is due to electricity; thus showing that electricity is a separate principle, and not a mere property of matter.

Prof. Henry next passed to the subject of the discharge of a jar. It was necessary, in his experiments, to get rid of the free electricity arising from the thickness of the glass, and it occurred to him that this might be done by removing the knob, and making the coating upon the inside of less area than that upon the outside. With this arrangement, when the discharge was made through a long wire, and a test jar brought near it during discharge, a bright spark passed; but upon approaching the jar to a delicate electrometer, it gave no indications of free electricity. Reflecting upon this, and upon an experiment of Prof. Wheatstone's, Prof. H. was led to believe that the jar is discharged by two waves, a negative and a positive one, starting simultaneously from the two ends of the wire. To prove this, he broke the wire, and interposed a pane of glass dusted with red lead and sulphur; two figures of positive and negative electricity were produced. He made several other experiments tending to prove this same fact. He showed how these experiments serve to explain that of Dr. Priestley, where a spark was found to pass between the ends of a long bent wire, the ends being brought within a few inches of each other.

He next passed to the connexion between statical and dynamical induction. Statical induction has heretofore only been observed at short distances. Prof. H.'s first experiment proved that it could be observed at the distance of nineteen feet, the floor of a chamber intervening, showing that statical induction takes place at great distances, though not at so great distances as the dynamical. He then explained his views of the nature of dynamical induction. When a spark is thrown upon a wire, it passes in a wave, whose length might be determined if we knew the velocity of electricity; now, if we have another parallel wire, a negative wave will be formed in this, and the two waves will travel simultaneously in the same direction. But this is equivalent to a positive induced wave in the opposite direction. In this way the phenomena accompanying the discharge of a jar are easily explained. Again, if we conceive that in a galvanic battery the discharge consists of a series of such waves, we may very simply explain the phenomena of galvanic induction.

Mr. Justice stated, that within the last six months he had planned two observatory buildings, which, so far, had been

found perfectly complete and successful; and he called the attention of the members to the fact, that they could be erected at a much less expense than that of the High School, which cost about $7000, while these had not cost more than $500 or $600 a piece. The wall was carried up until near the top (from 35 to 40 feet), and then curved inwards about 18 inches; and on it were then laid the timbers upon which the equatorial was supported. It was then carried up some 18 inches higher, and the observatory floor laid upon the same wall. The dome had been made to traverse with great facility by a very simple contrivance. Plates of boiler iron were made of a circular form, one of which was attached to the lower edge of the dome, the other laid down upon the floor. The dome traverses upon balls of iron, about seven inches in diameter.

The Committee appointed on the 5th January, 1844, to revise the By-laws and Regulations of the Society, reported a series of resolutions.

The list of Committees on business was called over.

Stated Meeting, November 21.

Present, twenty-five members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Royal Society of Sciences of Upsal, dated Upsal, 1st June, 1844, announcing the transmission of the 12th Vol. of their Transactions.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Horticultural Society of London. Second Series. Vol. II. Part VI. with Title and Index to complete the Volume. Vol. III. Parts I. and II. 4to.—*From the Society.*

Proceedings of the Horticultural Society of London. Nos. IX. to XXI. inclusive. January 21, 1840, to December 5, 1843. 8vo. *From the same.*

Society for the Encouragement of Arts, Manufactures, and Commerce. Abstract of Proceedings and Transactions, during the Session 1844–1845; and Premiums for the Sessions 1845–1846, 1846–1847. London, 1845. 8vo.—*From the Society.*

Nova Acta Regiæ Societatis Scientiarum Upsaliensis. Vol. XII. Upsaliæ, 1844. 4to.—*From the Society.*

Summary of the Transactions of the College of Physicians of Philadelphia. From May to October, 1845, inclusive. 8vo.—*From the College.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. II. No. 10. October, 1845. 8vo.—*From the Editor.*

Dissection of a Spermaceti Whale, and three other Cetaceans. By J. B. S. Jackson, M.D. From the Boston Journal of Natural History, Vol. V. No. 2. October, 1845. 8vo.—*From the Author.*

The list of Committees on subjects of science was read.

The list of Committees on obituary notices was read.

On motion of Dr. Dunglison, Dr. Wood was appointed to prepare an obituary notice of Dr. Beasley.

Dr. Patterson exhibited to the Society a *diamond*, which he had this day received, enclosed in a letter from Mr. James F. Cooper, Superintendent of the Branch Mint at Dahlonega.

It was found in Hall County, in the northern part of Georgia, in conducting the process of washing for gold.

Its weight is 6.8 grains; its specific gravity 3.54. It is a perfect crystal, in the form of a rhomboidal dodecahedron, with the rounded faces characteristic of this gem.

Its general outline is oval, somewhat flattened, or having, in the language of the lapidary, a good spread.

It had been exhibited to Mr. Isaac Philips, of Philadelphia, a gentleman thoroughly acquainted with the qualities and varieties of diamonds, and he pronounced it to be very white, and of the first water. He said that it bore a strong resemblance to those obtained from Borneo.

Mr. Cooper states, in his letter to Dr. Patterson, that two similar specimens had been found in the same locality. A diamond had also been found in the gold region of North Carolina some years ago, and was in the possession of Mr. Clemson.

Mr. Lea described the crystalline forms of the diamond, and exhibited a specimen of murio-phosphate of lead crystallized, with curved edges.

Dr. G. Emerson made a communication upon the excessive mortality of male children, with the causes.

"Of all the children born, many more are males than females. In Philadelphia, the excess of males at birth is about 7½ per cent. Of the children that die, much the largest amount are also males; so that by the 10th year of age, the male numerical advantage at birth of 7½ per cent. is nearly lost. By the 15th year, the number of living females comes to exceed the males about as much as the males did the females at birth.

Up to the 15th year, there has consequently been a loss of nearly 15 per cent. more males than females. It has been customary to ascribe this loss to greater exposure to the weather and accidents on the part of males. But this does not account for it, since the largest proportion of the mortality occurs during the earlier stages of infancy, whilst the sexes are subjected to similar circumstances.

By examining into the particular causes which had proved fatal to many thousands of both sexes, I found that those diseases by which the males had been destroyed in the greatest numbers were—inflammation of the brain, and its consequences, convulsions and hydrocephalus; inflammations of the lungs, stomach, bowels, &c.; fevers of all kinds, except scarlet and some others of the eruptive class.

The diseases most destructive to male infants all belong to the *Sthenic* class, characterized by excessive inflammatory and febrile actions, such as attend upon constitutions in which the energies of life are highly exalted.

The list of diseases in which the deaths of females constitute the largest proportion, is small, the most prominent being hooping cough and scarlet fever. These, with all other diseases to which female infants are particularly liable to succumb, appertain to the *Asthenic* class, characterized by speedy exhaustion and prostration of the vital forces.

Upon comparing these results, obtained from data furnished by the Philadelphia bills of mortality, with others derived from calculations based upon the British bills, embracing an immense amount of deaths, I find my conclusions, relative to the controlling agencies exerted over infantile life by peculiar physiological conditions of the sexes, fully sustained. The practical bearing of these results of statistical

investigation, must be very obvious to physicians. The proneness of boys to fall victims to diseases of a highly inflammatory character, must surely call for the adoption of prompt and vigorous means of reducing the exalted actions of the system, which sustain local inflammations, and lead them to terminate in disorganization. In the treatment of girls, on the contrary, more than ordinary caution should be observed not to push antiphlogistic measures too far, to guard against the effects of enfeebling agencies, and provide timely support to the exhausted energies of the system.

Effects of Hot Weather upon Infantile Mortality.

In the Southern and Middle States of the Union, the direct and indirect agencies of high temperature swell the lists of infantile mortality often to a melancholy extent. In some tables published in the American Journal of the Medical Sciences (Nov. 1831), I showed the deaths in Philadelphia under the 20th year, at the different seasons, for a period of five years. Taking the months of June, July, and August, or three warmest months, the proportion of deaths occurring under the 2d year of childhood, was about four times greater than that which occurred during the same months for the whole 18 years of life succeeding. On the other hand, the sum of the mortality under the 2d year, for November, December, and January, little exceeded that of the same months for the succeeding 18 years. These estimates show, in a striking manner, the direful influences exerted by hot weather upon infantile life, and the comparatively small injury sustained from cold. Perhaps the most interesting fact developed by statistical researches upon this particular subject, is, that the deleterious operations of heat are almost entirely confined to the first months of life, as, after the first year, the influence of the seasons in increasing infantile mortality is scarcely perceptible.

These investigations were published by me in 1831, since which the results of other inquiries upon the effects of temperature on life, made in Europe, have come to hand. These, generally, show an increased infantile mortality during the *winter* months, but still they sustain the law—for such I think it may be considered—that the influence of atmospheric temperature upon the infant seems almost lost, after it has weathered the first months of existence. Among others who have devoted attention to this topic with confirmatory results, I may refer to M. Quetelet, in his account of the influence of the seasons upon mortality at different ages, published in Brussels in 1838."

The resolutions reported at the last meeting, from the Committee on the By-laws, were taken up for consideration, and having been amended, the Chair decided that they must lie over until the next meeting.

On motion of Mr. Ord, the Committee appointed to report on the condition of the manuscripts of the Society was discharged.

On motion of Mr. Ord, the Librarian was directed to send a set of the new series of the Transactions of the Society to the Magnetic and Meteorological Observatory of the Institute of Mines of St. Petersburg, and to transmit them hereafter as they appear.

On motion of Dr. Dunglison, the Librarian was instructed to carry into effect henceforth, Chap. VIII. Sect. 3d, of the By-laws of the Society.

Stated Meeting, December 5.

Present, twenty-three members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Royal Prussian Academy of Sciences, dated 1st August, 1845, on transmitting the Transactions and Monthly Proceedings of the Academy:—

From Col. Abert, dated Washington, 3d December, 1845, acknowledging the receipt of notice of his appointment to prepare an obituary notice of the late Mr. Nicollet: and,—

From Dr. Wood, dated Philadelphia, 27th November, 1845, accepting the appointment to prepare an obituary notice of the late Dr. Beasley.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1843. Berlin, 1845. 4to.—*From the Royal Academy of Sciences of Berlin.*

Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1845. January to June, inclusive, 6 numbers. 8vo. July, Aug. Sept. Oct. Nov. Dec. 1844, 4 numbers. 8vo.—*From the same.*

Boston Journal of Natural History. Containing Papers and Communications read before the Boston Society of Natural History, and published by their direction. Vol. V. No. 2. Boston, 1845. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. Nos. 10, 11. July, August, September, October, 1845. 8vo.—*From the Academy.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. X. November, 1845. 8vo.—*From Dr. R. M. Patterson.*

Magnetical and Meteorological Observations made at Washington, under Orders of the Hon. Secretary of the Navy, dated Aug. 13, 1838. By Lieut. J. M. Gilliss, U. S. Navy. Washington, 1845. 8vo.—*From the Author.*

The Medical News and Library. Vol. III. Dec. 1845. No. 36. 8vo.—*From Messrs. Lea & Blanchard.*

Lettre à M. Ph. Fr. de Siebold sur les Collections Ethnographiques. Par M. Jomard. 8vo.—*From the Author.*

Monument à Christophe Colomb. Son Portrait. Par M. Jomard. 8vo.—*From the same.*

Des Cartes en Relief. Par M. Jomard. 8vo.—*From the same.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. No. 548, with Supplementary Number. 4to.

The list of outstanding Committees on subjects of science was read.

Dr. Patterson read an obituary notice of the late Mr. Gummerè.

The list of outstanding obituary Committees was read.

Dr. Boyè presented a specimen of the true nitric ether, the article commonly so called being hyponitrous ether, and explained the mode of obtaining it, and the marked differences between it and the hyponitrous ether, and referred to a new method of preparing the latter substance.

Prof. Stephen Alexander, of Princeton, N. J., made a verbal communication relative to some Miscellaneous Contributions to Astronomical Science, which he stated he might present in a more permanent form hereafter.

I. *On a Minute Correction in the Position of the Tropic on the Terrestrial Spheroid.*

Prof. Alexander observed, that if the tropic were to be regarded as the parallel of a place, at which the sun was vertical at the time of the solstice, then the central ray from the sun must coincide with the plumb line of the place, upon the tropic, at which it was then noon. The angle made by this plumb or *vertical* line, with the plane of the equator, i. e. the measure of the *geographic* latitude of the place, would exceed the angle with the same plane, made by the line joining the centres of the sun and earth, i. e. the *obliquity* of the ecliptic, by a very minute quantity. Prof. A. showed how this excess might readily be computed. It amounts to but 0″.0217; the measure of which, on the earth's meridian, is rather less than 2 feet $2\frac{1}{4}$ inches.

II. *On a Region of Continued Twilight.*

It being considered as established, that the region of twilight extended about 18° beyond the terminator, or boundary of sunshine, it followed, that whenever the sun's declination was less than 18°, the pole at which the sun had set, would still be within the region—or zone as it might be termed—of twilight; and all places within a determinate distance of that pole must revolve within this same region, and thus, during their whole diurnal rotation, the inhabitants, if any, of such places, would experience a continued twilight of variable intensity. This circumpolar region must be most extensive within the arctic circle, about the 17th of October, and the 24th of February; and within the antarctic circle, about the 14th of April, and the 29th of August: allowance being made for the encroachment upon the terminator due to refraction, the sun's semidiameter, &c.

III. *On Temporary Stars.*

Prof. A. gave a brief statement of some of the hypotheses which had been devised to account for the phenomena presented by these bodies, and then suggested the following modification of one of them:—

A temporary star may be regarded as a sphere having its axis of rotation oblique to the direction of the star's place, as seen from the earth. This sphere, moreover, may be presumed to be in a great measure opaque; insomuch, that but a small spot on that portion of it, turned toward the earth, would be luminous, and the situation of this spot be similar to that of a star on the celestial sphere, *near to the circle of perpetual occultation*. Such spot would come somewhat rapidly into view, acquiring very speedily an almost maximum brightness: the subsequent diminution of its brightness would, moreover, be as rapid as its increase had been, and during by far the larger part of the star's rotation, the luminous portion, and of course the star itself, would be invisible. This supposes the star to be very large, or otherwise excessively bright, or else comparatively near; or some or all of these combined.

IV. *On the Dragging of the Shadows of the Earth and other Planets, as well as those of their Satellites.*

Prof. A. remarked, that while the tangent ray, which at any instant was situated in the limit of the earth's shadow, was subject to the progressive motion of light, the earth itself moved onward with a velocity due to its annual motion in its orbit. The limit of the shadow would therefore pass through the points which the successive tangent rays, after they had left the earth, had at any instant reached. The whole shadow would, therefore, *drag* or fall behind the direction of the line joining the centres of the sun and earth. *The angular amount* of this dragging of the shadow would, however, be *equal and opposite to the sun's annual aberration;* insomuch, that the *direction* of the shadow would be the opposite to that of the *apparent* place of the sun, as affected by the annual aberration. A closer investigation would indicate an essentially similar result with respect to the moon and planets, when their shadows or penumbræ fell upon the earth. Hence the phenomenon of the dragging would be wholly masked, in the case of an eclipse of either sun or moon, or that of the transit of an inferior planet. When, however, the earth was not the body in question, or the shade did not fall upon the spectator, as in the case of an eclipse of one of Jupiter's satellites, an equation must be due to the dragging of the shadow, though the circumstances might render its effect insensible to observation. These and the preceding observations were illustrated by diagrams, and,—

V. Prof. A. exhibited also a Diagram of *Sundry Curves illustrative of the Equation of Time.*

The first was a curve of contrary flexure, the abscissas of which were proportionate to time, while the ordinates represented the amount of equation due to the obliquity of the ecliptic. This curve intersected the axis of abscissas at the points representing the instants of the equinoxes and solstices. The second curve was similarly constructed, and had the same axis of abscissas, but its ordinates represented the amount of equation due to the elliptical form of the earth's orbit, and, consequently, intersected the common axis of abscissas at the points representing the instants of the earth's arrival at the aphelion and perihelion. The third curve was formed by referring to a new, and in all respects similar axis of abscissas, the algebraic sum of the coexisting ordinates of the two former curves. It intersected the new axis of abscissas at the points representing the instants at which the actual equation of time is zero.

By supposing the second curve to change its position by a transfer along the common axis of abscissas, while the first remained nearly fixed, it was observed that the changes in the equation of time, for a period either past or future, might be readily exhibited.

Mr. Justice made the following communication to the Society:—

Whilst trying some experiments with a five bar horse shoe magnet, whose force was equal to raising five pounds in weight, I had occasion to place a needle afloat on the surface of water contained in a glass tumbler. The needle accidentally sinking during the experiment, induced me to apply the magnet outside of the tumbler, to raise it again; this was easily done, the needle following up the side of the tumbler the poles of the magnet, which were kept on a plane, so as to admit of it being raised in a horizontal position. To my great surprise, when the needle was thus raised to the surface of the water, and the magnet withdrawn, it again floated as though it had not been wetted; the experiment was frequently repeated with like results, and on close observation the particles of water seemed to be unusually agitated.

The Treasurer, Mr. Ord, presented his account, which, in accordance with the regulations of the Society, was referred to the Committee on Finance.

The Committee of Publication presented their report, which was read.

Mr. Frazer, Reporter, presented to the Society No. 33 of the Proceedings of the Society, just published.

The Society then proceeded to the consideration of the resolutions reported by the Committee on By-laws, and amended at the last meeting of the Society.

On motion of Mr. Fraley, the subject was referred back to the Committee, with instructions to report forthwith; which being complied with, the resolutions were reported in an amended form.

Special Meeting, December 16.

Present, nineteen members.

Dr. Franklin Bache, Vice-President, in the Chair.

The Chairman stated that the meeting had been called at the request of a Committee appointed to take such steps as might seem to them expedient, in consequence of the claim of the executors of the late Mr. Nathan Dunn, against the Society.

The Committee having reported, the subject was referred to a Committee, consisting of Mr. Cope, Mr. T. Biddle, Mr. Vanderkemp, Mr. Dillingham, and Mr. Ord, who were authorized to associate with themselves such other members as they should think proper.

Stated Meeting, December 19.

Present, thirty-three members.

Dr. Franklin Bache, Vice-President, in the Chair.

The Right Rev. Dr. Potter, Bishop of the Protestant Episcopal Church for the Diocese of Pennsylvania, was introduced, and took his seat.

Letters were announced and read:—

From the Secretary of State to Mr. J. R. Ingersoll, dated

Washington, 16th December, 1845, in reference to the furnishing the Society with Congressional documents:—

From the same Department, dated Washington, 11th December, 1845, announcing the transmission of a donation to the Library of the Society:—

From the Regents of the University of New York, dated Albany, 9th December, 1845, acknowledging the receipt of the Proceedings of the Society, Vol. IX. No. 33: and,—

From the Royal Society of Sciences, Agriculture, and Arts, of Lille, dated Lille, 17th October, 1845, acknowledging the receipt of seven volumes of the Transactions of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Journal Asiatique. Quatrième Série. Tome VI. Juillet, Août. Nos. 25, 26. 8vo.—*From the Asiatic Society of Paris.*

Bulletin de la Société de Géographie. Troisième Série. Tome III. Paris, 1845. 8vo.—*From the Geographical Society of Paris.*

Message of the President of the United States to the Two Houses of Congress, at the Commencement of the First Session of the Twenty-ninth Congress. Washington, December, 1845. 8vo.—*From the Hon. Joseph R. Ingersoll.*

The African Repository and Colonial Journal. Vol. XXI. December, 1845. 8vo.—*From the American Colonization Society.*

Report of the Commissioners appointed by authority of the City Council, to examine the Sources from which a Supply of Pure Water may be obtained for the City of Boston. City Document, No. 41. Boston, 1845. 8vo.—*From Walter R. Johnson, Esq.*

Memoir on the Language and Inhabitants of Lord North's Island. From the Memoirs of the American Academy. By John Pickering. Cambridge (Mass.), 1845. 4to.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Academie des Sciences. Tome XXI. Nos. 9 to 16, inclusive. 1st September to 20th October, 1845. 4to.

The list of outstanding Committees on subjects of science, and on obituary notices of deceased members, were read.

A communication for the Magellanic Premium, entitled "Memoir on the Parallectic Eye-piece, an Optical Combina-

tion for the Astronomical Determination of Minute Angular Changes," was presented, and being read in part, was referred to the officers and council.

Mr. Franklin Peale submitted to the examination of the members of the Society, some specimens of the manufacture of Gum-elastic Goods, by Mr. Goodyear, of New Haven, Conn., the inventor and patentee, and remarked upon the changes produced by the combination of a variety of inorganic substances, particularly the oxides of lead, &c. with this gum.

Mr. Peale observed, that the gum, in its ordinary state, was much affected by temperature, a fact familiar to every one, and was soluble in some of the oils and spirits, by which its value in the arts was much diminished; the articles exhibited were free from this inconvenience, retaining in the lowest temperature of the external air, all their present softness and pliability. He showed, also, that the elasticity was increased, and stated that they were no longer subject to the action of the usual solvents of this curious substance.

Mr. Peale directed the attention of the members to the beauty of the impressions of a finely engraved copper plate, upon the sheet gum, which being of uniform substance, without fibre, received the ink of the most delicate lines, more distinctly and beautifully than the finest paper. The samples shown were in the form of portable maps, which could be put in the pocket like a handkerchief.

Fancy table covers, ornamented with silver and gold, bronze, some of which had been bleached, and others left of the natural colour, together with crumb cloths, bathing mats, &c. were also shown.

Mr. Peale also mentioned, that the articles presented, were a few of the many useful and fanciful applications which the ingenious inventor had made by his improved process, and that the manufacturers were now principally employed in the production of articles of necessity and utility.

Professor Henry presented a paper, by Capt. Stockton, detailing experiments upon the bursting of cannon. The result of the experiments was, that the gun is not more liable to burst when there is an air space between the powder and ball, than when the wad is rammed home.

The communication gave rise to observations from Dr. Patterson, Prof. Henry, Mr. Ord, Prof. Frazer and Dr. Bache.

Professor Henry asked for information in regard to the ex-

periment related by Mr. Justice at the last meeting of the Society, and stated it as his belief, that if the needle had been carefully examined it would have been found not to be wetted.

Dr. Patterson reminded the Society, that about two years ago he had described a speaking automaton, which had been made and afterwards destroyed by Mr. Joseph Faber. He referred to various attempts which had been made to accomplish this object, which had been but partially successful, although universally regarded as the results of great ingenuity on the part of their inventors. The automaton in question could pronounce all words. Since then Mr. Faber has made a new instrument similar to the former, which was completed only a few days ago. Dr. P. stated, that he had witnessed its performances, and that they were at least equal to those of its predecessor; all words are produced by it as in the former instrument by various combinations of sixteen elementary sounds.

The Committee on Finance reported that they had examined the Treasurer's report, and found it correct, and recommended certain yearly appropriations, which were agreed to.

The list of outstanding Committees on business, was read.

Mr. Peale, on behalf of the Curators to obtain the standards of measure, reported in part.

On motion of Mr. Fraley, the Committee on Mr. Parker's claim was discharged, and the unfinished business referred to the Committee on Finance.

The Curators charged with removing the skeleton of the elephant from the Philadelphia Museum to the Hall, were discharged from the duty.

The Librarian was discharged from the farther duty of disposing of the copies of Mr. Du Ponceau's Essay on the Chinese Language.

The Society proceeded to the consideration of the resolutions reported by the Committee on the By-laws, which, on motion, were adopted, in the following form:—

"A resident member, who shall allow himself to be indebted for the annual contribution of *three* successive years, shall be deemed to have forfeited his membership; provided, however, that the Committee of Finance may, at their discretion, in any particular case, suspend the action of this paragraph.

"Between the months of August and November, inclusive, of each year, the Treasurer shall give notice in writing, to such members as may become liable, after the first Friday of January following, to the operation of the last paragraph of the 10th Section of the First Chapter of the Laws: and on the first Friday of February, he shall report to the Society all such forfeitures as may have taken place, as aforesaid."

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JANUARY—JUNE, 1846. No. 35.

Stated Meeting, January 2.

Present, twenty members.

Dr. FRANKLIN BACHE, Vice-President, in the Chair.

The report of the election of officers for the ensuing year was read.

President.

N. Chapman, M.D.

Vice-Presidents.

R. M. Patterson, M.D.
Franklin Bache, M.D.
A. D. Bache, LL.D.

Secretaries.

J. K. Kane,
Robley Dunglison, M.D.
A. L. Elwyn, M.D.,
J. F. Frazer.

Counsellors.

Thomas Biddle,
Isaac Lea,
Hartman Kuhn.
T. P. Cope.

Curators.

Franklin Peale.
J. P. Wetherill.
J. C. Cresson.

Treasurer.

George Ord.

Letters were announced and read:—

From Mr. John B. Sartori, dated Leghorn, 1st November, 1845, in reference to the specimen of what he believes to be "fixed mercury," forwarded by him to the Society:—

From Dr. Wm. B. Carpenter, dated London, December 3d, 1845, acknowledging the receipt of the notice of his election as a member of the Society:—

From Sir William Jardine, dated Jardine Hall, 21st November, 1845, acknowledging the notice of his election:—

From Messrs. J. H. Alexander and A. D. Bache, announcing donations to the Society: and,—

From the Zoological Society of London, dated May, 1845, acknowledging the reception of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Geological Society of London. Vol. IV. Part III. 1844–5. Nos. 102, 103. 8vo.—*From the Society.*

Proceedings of the Zoological Society of London. Part XII. 1844. 8vo.—*From the Society.*

Reports of the Council and Auditors of the Zoological Society of London, read at the Annual General Meeting, April 29, 1845. 8vo.—*From the same.*

Title and Index to Vol. VI. of the Monthly Notices of the Royal Astronomical Society of London.—*From the Society.*

Catalogo Metodico dei Mammiferi Europei di Carlo L. Principe Bonaparte. Milano, 1845. 4to.—*From the Author.*

Specchio Generale dei Sistemi Erpetologico, Anfibiologico ed Ittiologico di Carlo L. Principe Bonaparte. Milano, 1845. 4to.—*From the same.*

Catalogo Metodico dei Ciprinidi d'Europa e Ritievi sul Volume XVII. dell'Istoria Naturale dei Pesci del Sig. Valenciennes di Carlo L. Principe Bonaparte. Milano, 1845. 4to.—*From the same.*

Report on the Standards of Weight and Measure for the State of Maryland; and on the Construction of the Yard Measures. By J. H. Alexander. Baltimore, 1845. 8vo.—*From the Author.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. X. December, 1845. No. 6. 8vo.—*From Dr. Patterson.*

Map of New York Bay and Harbour. Two sheets, which complete the Map, the whole being composed of six sheets.—*From Prof. A. D. Bache.*

Journal of the Senate of the United States of America, being the First Session of the 28th Congress, begun and held in the City of Washington, December 4, 1843, and in the Sixty-eighth Year of the Independence of the United States. Washington, 1843. 8vo. *From the Hon. James Buchanan, Secretary of State.*

Journal of the House of Representatives of the United States. First Session, 28th Congress. Washington, 1844. 8vo.—*From the same.*

Public Documents, printed by order of the Senate of the United States. First Session, 28th Congress. Six Volumes. Washington, 1844. 8vo.—*From the same.*

Executive Documents. First Session, 28th Congress. Six Volumes. Washington, 1843, 1844. 8vo.—*From the same.*

Reports of Committees. First Session, 28th Congress. Three Volumes. Washington, 1843, 1844. 8vo.—*From the same.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. No. 549, with Supplementary Number. 4to.

Prof. Frazer, on the part of the Committee on Major Graham's paper, reported progress.

Mr. Daniel B. Smith read a portion of a letter from Prof. Henry, of Princeton, that referred to a paper by Mr. Faraday, relating to a new discovery in regard to the polarization of light, and stating that he had repeated with success the experiments of Mr. Faraday.

Stated Meeting, January 16.

Present, twenty-six members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the Perpetual Secretary of the First Class of the Royal Institute of the Netherlands, Amsterdam, dated July

25, 1845, informing the Society that Vol. XI. of the New Memoirs of the Institute was forwarded, and acknowledging the reception of the Proceedings of this Society, and of Dr. Dunglison's Eulogy on its late President, P. S. Du Ponceau, Esq:—

From Col. Totten, dated Washington, Jan. 8th, 1846, announcing a donation to the Library:—

From Professor Frazer, resigning the office of Secretary: and,—

From the Secretary of the Society for the Encouragement of Arts, dated London, 17th June, 1845, acknowledging the reception of the Proceedings of this Society, and of Dr. Dunglison's Eulogy on P. S. Du Ponceau, Esq.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen. Zweiter Band. Von den Jahren, 1842—1844. Göttingen, 1845. 4to.—*From the Royal Society of Göttingen.*

Nieuwe Verhandelingen der Eerste Klasse van het Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoone Kunsten te Amsterdam. Elfde Deel. (Vol. XI.) Amsterdam, 1845. 4to.—*From the Netherlands Institute.*

Het Instituut, of Verslagen en Mededeelingen, uitgegeven door de Vier Klassen van het Koninklijk Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoone Kunsten, over den Jare, 1844. Nos. 3 and 4. 1845. No. 1. 8vo.—*From the same.*

The African Repository and Colonial Journal. Vol. XXII. January, 1846. No. 1. 8vo.—*From the American Colonization Society.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XXI. New Series. Jan. 1846. 8vo.—*From the Editor.*

The Medical News and Library. Jan. 1846. No. 37. 8vo.—*From Messrs. Lea & Blanchard.*

An Introductory Lecture, delivered before the Class of Institutes of Medicine, in Jefferson Medical College, November 3, 1845. By Robley Dunglison, M.D. 8vo.—*From the Author.*

The American Journal of Science and Arts. Conducted by Prof.

Silliman, B. Silliman, Jr., and James D. Dana. Second Series. Vol. I. January, 1846. No. 1. 8vo.—*From the Editors.*

Annual Message of the Governor of Pennsylvania, transmitted to the Senate and House of Representatives, Jan. 7, 1846. 8vo.—*From C. B. Trego, Esq.*

Twenty-ninth Congress, First Session, House of Representatives, Document No. 2. Message of the President of the United States, to the Two Houses of Congress, Dec. 2, 1845. 8vo.—*From the Hon. Joseph R. Ingersoll.*

Twenty-ninth Congress, First Session, Senate, Document No. 13. Report from the Secretary of the Treasury, communicating a Report from the Superintendent of the Coast Survey, showing the Progress of the Work under his charge during the year ending November, 1845. 8vo.—*From Prof. A. D. Bache.*

The Committee on Major Graham's paper, on the Dip of the Magnetic Needle in 1842, 1843, 1844, reported in favour of its publication in the Transactions of the Society, and it was so ordered.

Dr. Patterson alluded to the letter of Prof. Henry, read at the last meeting, and read a portion of a second letter from the same gentleman, in which he describes the manner in which he had repeated the experiments of Mr. Faraday.

This consists in producing, in pure water and other liquids, a new arrangement of particles, by which they become possessed of the property of circular polarization, during the time a current of galvanism is circulating around them. The arrangement I employed was as follows:—A tube of glass was filled with pure water, and the ends closed with plates of glass; this was placed in the axis of an iron tube, and this again inserted into the axis of a coil consisting of about eight hundred feet of copper wire. The ends of the iron tube were closed with corks, through one of which was passed a Nicoll's prism, and in the axis of the other was fastened a plate of tourmaline. This tube being directed to the clear sky, and the tourmaline, which was placed next the eye, so turned that it presented a dark field of view, a current of galvanism from twenty-two cups of Daniell's battery was passed through the coil. At the moment of making the communication with the battery, the field became light; and when the circuit was broken, it again appeared dark. A slight rotation of the tourmaline also produced darkness while the galvanic

current was passing, which indicated a twist in the plane of polarization of the prolonged beam. The same effect was produced without the iron tube, but not to the same extent.

Dr. Boyé communicated to the Society the results of an Analysis of a Concretion from a Horse's Stomach, performed by Mr. Charles M. Wetherill and himself.

This concretion, for a fuller description of which, in connexion with its history, Dr. B. referred to his friend, Dr. B. H. Coates, by whom it was handed to him for examination, is remarkable for its size, weighing 11¾ lbs. It is of an oval shape, smooth surface, brownish-grey colour, and breaks in concentric layers of different degrees of thickness, exhibiting a fibrous or radiated structure. The outer layer alone was analyzed. The concretion was found, by Dr. Coates, to contain a nail in its centre.

By a qualitative examination, it was found to consist of phosphoric acid, magnesia, ammonia, chemically combined water, a small portion of organic matter, and silex. It contained no lime. In order to determine quantatively these ingredients, a portion was dissolved in dilute hydrochloric acid; the insoluble residue collected on a counterpoised filter, dried and weighed; after incineration and weighing, it yielded *insoluble inorganic matter* 0.45 *per cent.*, which, deducted from its former weight, gives *insoluble organic matter* 0.64 *per cent.*

To the filtered solution was added a weighed portion of iron wire, dissolved in nitro-muriatic acid, and the whole then precipitated by ammonia. Having previously ascertained the amount of peroxide of iron yielded by an equal portion of the same iron wire, the difference in weight of these two precipitates gave for the *phosphoric acid*, 32.40 *per cent.*

To the filtered solution from the phosphoric acid, was added caustic potash in excess, and the whole boiled until the ammoniacal vapours were effectually expelled, and the solution gave a strong alkaline reaction. The magnesia thus obtained was collected upon a filter, washed with boiling water, incinerated and weighed; it yielded *magnesia*, 14.45 *per cent.*

Another portion of the powdered concretion dried over sulphuric acid in vacuo at ordinary temperatures, yielded *hygrometric moisture*, 1 *per cent.*; incinerated, it yielded *volatile matter* (*water and ammonia*), 51.70 *per cent.*

In order to determine the amount of ammonia, another portion of the powder was introduced into a small tubulated retort, with carbonate of soda and water. The neck of the retort was adapted to a small tubulated receiver containing dilute hydrochloric acid, and having adapted to its tubulure a nitrogen bulb, such as is used in ultimate organic analysis; this also contained dilute hydrochloric acid. The mixture in the retort was evaporated to dryness; and at the close of the operation, air was drawn through the apparatus to insure the absorption of the last portion of ammonia. The *ammonia* thus obtained was estimated by precipitation by chloride of platinum, as in organic analysis, and yielded 0.71 per cent.

Hence the composition of the concretion is as follows:—

Phosphoric acid, - - -	32.40 per cent.
Magnesia, - - -	14.45 „
Water, - - - -	50.35 „
Ammonia, - - -	.71 „
Insoluble inorganic matter, -	.45 „
Insoluble organic matter, - -	.64 „
Hygroscopic moisture, - -	1.00 „
	100.00

It will be seen from this, that the amount of ammonia is too small to be considered an essential ingredient of the concretion. Assuming it to exist in the state of double phosphate of ammonia and magnesia with water (NH^4O, 2MgO, $PO^5 + 2HO + 10HO$), and deducting the amount of this salt from the rest (omitting the insoluble matter and hygroscopic moisture), it will be seen that the concretion is composed mainly of the phosphate of magnesia and water, according to the following formula $3MgO + 3HO + 2PO^5 + 21$ aqua, as will be seen from the following comparison:—

By Experiment.		By Calculation.	
Phos. acid,	33.56	$2PO^5$,	33.70
Magnesia,	14.55	3MgO,	15.20
Water,	51.89	24Aq.	51.10
	100.00		100.00

Dr. Coates mentioned some of the symptoms which attended the formation of this concretion, and that it had not been re-

marked as producing inconvenience to the animal, till a week before its death. Dr. Coates supposed it was found in the cœcum, and not in the stomach. This inference was drawn partly from the authority of Berzelius in cases of similar concretions, and partly from anatomical and physiological considerations. Dr. Coates mentioned also, that he had found the tricocephalus in the human cœcum after death.

The list of the surviving members of the Society was read; from which it appears, that the whole number is 353. Two hundred and forty-six reside in the United States, and one hundred and seven in foreign countries. Ten deaths have been announced to the Society during the year.

Mr. George Ord was reëlected Librarian.

The following standing Committees were appointed:

Of Finance.—Mr. C. C. Biddle, Dr. Patterson, Mr. Lea.

Of Publication.—Mr. Lea, Dr. Hays, Mr. J. F. Fisher.

On the Hall.—Mr. Campbell, Mr. Fraley, Mr. Kane.

On the Library.—Dr. Hays, Mr. Campbell, Mr. Penington.

The Society then proceeded to ballot for new members.

The Committee appointed to take charge of the claim of the Executors of the late Nathan Dunn, against the Society, made a verbal report, and requested to be discharged, to which the Society consented.

The business of the evening being concluded, the ballot boxes were opened, and the following gentlemen declared by the presiding officer to be elected members of the Society:

Henry Holland, M.D. F.R.S., of London.

Professor John Muller, of Berlin.

Hon. James Buchanan, of Lancaster, Pa.

Stated Meeting, February 6.

Present, thirty-five members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the Academy of Arts and Sciences, Boston, dated January 31, 1846, enclosing a report of a Committee of the Academy, calling the attention of this Society to the subject of Meteorological Observations in North America, and suggesting some alterations and improvements in the present system:—

From the Imperial Society of Naturalists of Moscow, dated Sept. 11, 1845, announcing the transmission of some numbers of the Bulletin of that Society:—

From the Society of Natural History in the Mauritius: and,

From Baron Von Hammer Purgstall, dated Vienna, Feb. 8, 1845, informing the Society that he had sent to it, as a donation, a set of the Vienna Review, for 1844, and another work.

The following donations were announced:—

FOR THE LIBRARY.

Bulletin de la Société Impériale des Naturalistes de Moscou. Tome XVIII. Année 1845. Nos. 2 and 3. Moscou, 1845. 8vo.—*From the Society.*

Annual Report of the Trustees of the State Library. Albany, Jan. 9, 1846. 8vo.—*From the Trustees.*

Jahrbûcher der Literatur. January to December, 1844. Vienna. 8vo.—*From Baron Von Hammer Purgstall.*

Zeitwarte des Gebeles in Sieben Tageszeiten. Ein Gebetbuch, Arabisch und Deutsch. Herausgegeben von Hammer Purgstall. Wein, 1844. 12mo.—*From the Author.*

The Medical News and Library. Vol. IV. Feb. 1846. No. 38. 8vo.—*From Messrs. Lea & Blanchard.*

Address delivered at the University of Pennsylvania, before the Philomathean Society, May 23d, 1845. By Henry D. Gilpin. 8vo. *From the Author.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. No. 550, and Supplement. 4to.

Mr. Nulty read a paper "On the Determination of Azimuths in a Geodesical Survey, from a Series of Observations of Polaris."

This star, when towards its maximum elongation from the meridian of a station, has been found to give more consistent and uniform results than observations of the *sun*, and should therefore be exclusively preferred at all geodesical stations, which require a high degree of accuracy in their respective bearings. The principal data employed in the computation of an azimuth, chiefly depend on the instrument used by the observer. With the repeating circle, a number of angular distances forming a series may be taken vertically, between the star, near its greatest eastern or western elongation, and a corresponding signal placed in the horizon; or a like series of horizontal angles may be observed by means of a theodolite. Both modes of observation will lead to accurate results; but when the star is viewed successively near its greatest eastern and also near its greatest western elongation from the meridian of the station, so as to guard against imperfection in the instrument, the latter is preferred as having superior advantages. This mode of observing Polaris has been lately adopted in the U. S. Coast Survey, by its present superintendent. It must give to the azimuthal bearings of that extensive work every requisite precision. The brief notice here taken will enable the mathematician to form a sufficient idea of the problem of azimuths by Polaris, as considered by the author of the paper now under report. The several instants of observation with the elongations of the star, and the known latitude of the station, are the essential elements of solution; but, instead of introducing them into the usual general expressions for azimuths, which in case of one or several series would be attended with excessive labour, the author employs special formulæ immediately bearing on the observed positions of the star, and by which the practical computation of azimuths by Polaris, is reduced to almost the same facility as that of latitude. It is hardly necessary, in a summary of this nature, to describe minutely the character of the formulæ investigated in the paper. They correspond in general to three positions of Polaris, taken as an origin or mean instant of a series; the *first* being the time of maximum elongation, the *second* involving a horary angle of six hours from the meridional passages at the station, and the third referring to a more general position of the star, not, however, far distant from its plane at greatest elongation. In a mathematical sense, they have each

some analytical advantage; and an expert computer will use them and their adjunct differential expression with equal facility in reference to the mean instant of his data. The author appears to have had considerable experience in testing their practical application, and from such, gives a partiality to his leading formulæ, as connected with the more favourable position of the star, and as having brevity and easy recollection to recommend them. In concluding his paper, he mentions "Puissant Geodesie," (edition of 1842,) and Strune's Gradmessing, as standard writers in France and Germany, on these and similar subjects. He regretted not having the advantage of seeing these works, and referred to them only through a notice of Prof. A. D. Bache, Superintendent of the Coast Survey, who has sent to him a short transcript of two formulæ (one from each work), which are different from those forming the principal objects of his paper, and which must be seen in their respective authors, to seize their application and their presumed advantage.

Professor J. C. Cresson gave a brief account of the demolition of Mr. Paul Beck's shot tower, in the western part of the city. The height of the structure was about 160 feet, and the walls six feet in thickness at the base.

The walls were cut away near the base on the whole of the northern side, and partly on the eastern and western, the parts thus undermined being temporarily supported by shores of timber. When the undermining was completed, an unsuccessful attempt was made to remove the shores by means of gunpowder; and while the workmen were preparing a second charge of powder, the base of the building was suddenly protruded toward the south, and the whole fabric crumbled into fragments, collapsing, as it were, upon its own base, and the ruins occupying but little more ground area than the original structure.

The following communication, relating to observations made at the Washington and Philadelphia High School Observatories, on the two Biela comets, was brought before the Society, by Dr. Patterson.

Washington, D. C. Feb. 5, 1846.

Dear Sir,—I send you the measures of the position and distance of the two Biela comets, made at the Washington and High School Observatories. The angles of position are measured from the north round the circle eastward. The time is mean time, Washington Observatory. The results are as yet only approximate, not having been rigorously computed.

DATE.				Observatory.	Position B from A.	Distances.	Brilliancy of B in parts of A.
January	14*d*	6*h*	51*m*	Wash.	322.4°	98.″	0.2
	18	6	46	,,	325.0	130.	0.3
	19	6	38	,,	325.5	131.	0.3
	22	7	1	,,	325.8	145.	0.4
	22	7	45	Phila.	330.0	145.	0.4
	23	7	1	Wash.	327.8	147.	0.4
	24	7	23	,,	326.4	152.	0.5
	24	7	27	Phila.	329.1	152.	0.5
	26	6	35	Wash.	327.7	156.	0.6
	28	6	47	,,	330.0	169.	0.7
	28	6	27	Phila.	329.6	178.	0.7
February	4	6	39	Wash.	333.5	221.	0.7

B is the fainter comet. Both A and B have a condensation of light in the centre of their nebulosities. Both have a tail extending from the comet opposite the sun about 4′. Both the nebulosities when the moonlight is absent, seem to blend very faintly at their outer border.

The above descriptions and measures are furnished with the consent of Messrs. Maury and Kendall.

I submit, with some hesitation, an opinion respecting these singular objects.

In a period of 21 days of observation, the difference in place of each from that of Santuri's Ephemeris of the Biela comet is quite uniform, in traversing an arc of 15° of apparent motion in the heavens. Hence they would seem to be components of Biela's comet.

The objects are so indefinite in their shape that you will notice a great discrepancy in the measured positions and distances. By taking an average of several consecutive evenings, except for the 4th of February, which depends on one night's work, I find the following results:—

	B from A Position.	Daily increase.	B from A Distance.	Daily increase.	Log. dist. comet from earth	B from A in parts of earth's mean distance foreshortened.	Daily increase.
Jan. 18.*d*79	325°.2	+0°.58	130″	+4″.0	9.8783	0.0004702	+0.0000106
23.*d*28	327°.8	+0°.40	148″	+5″.3	9.8634	0.0005238	+0.0000105
28.*d*28	329°.8	+0°.53	174″	+5″.3	9.8346	0.0005764	+0.0000116
Feb. 4.*d*28	333°.5		211″		9.8082	0.0006578	

From these data it would seem that the apparent secondary revolution of B round the common centre of gravity of B and A is at the rate of about one half a degree per day, and the foreshortened daily departure of B from A in space, is about 1000 miles, and that so far, the revolution round each other, and the increase of distance asunder, are nearly uniform.

I am quite unable to give any theoretical explanation of the phenomenon.

Yours, truly,

S. C. WALKER.

To Prof. A. D. Bache, LL.D.

Prof. A. D. Bache made some remarks on the progress of the coast survey, under his superintendence, and illustrated them by a number of diagrams.

On motion of Dr. Elwyn, the letter from the American Academy of Arts and Sciences was referred to a committee, consisting of Dr. Emerson, Mr. Charles M'Ewen, and Prof. Cresson.

Stated Meeting, February 20.

Present, seventeen members.

Dr. Chapman, President, in the Chair.

A letter was announced and read:—

From the American Academy of Arts and Sciences, dated Boston, Feb. 8, 1846, inviting the coöperation of the American Philosophical Society, in a petition to Congress, to print an additional number of copies of the Reports of the U. S. Exploring Expedition.

The communication was referred to a Committee, consisting of Dr. Elwyn, Prof. Frazer, and Dr. Patterson.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Geological Society of London. With Plates in illustration of the Papers abstracted. Session 1844—45. Vol. IV. No. 104. Part 3. 8vo.—*From the Society.*

Proceedings of the London Electrical Society. Sessions of 1842–3. Edited by the Secretary. London, July 1, 1842. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. II. No. 12. Nov. Dec. 1845. 8vo.—*From the Academy.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. I. No. 2. October, 1843. 8vo.—*From the Editor.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. XI. January, 1846. No. 1. 8vo.—*From Dr. Patterson.*

The African Repository and Colonial Journal. Vol. XXII. February, 1846. No. 2. 8vo—*From the American Colonization Society.*

The British Almanac of the Society for the Diffusion of Useful Knowledge. For the Year 1846. 12mo.—*From Petty Vaughan, Esq.*

Notes on the Iroquois; or Contributions to the Statistics, Aboriginal History, Antiquities and General Ethnology of Western New York. By Henry D. Schoolcraft. New York, 1846. 8vo.—*From the Author.*

A Brief Account of the Processes employed in the Assay of Gold and Silver Coins, at the Mint of the United States. 8vo.—*From Dr. Robert M. Patterson.*

Act of January 18, 1837, relative to the Mint and Coinage of the United States. 8vo.—*From the same.*

The Committee appointed at the last meeting to report upon the communication from the Academy of Arts and Sciences, offered the following resolutions.

Resolved, That the American Philosophical Society adopt the recommendation of the American Academy of Arts and Sciences to unite with them in a memorial to the Government, asking an extension of meteorological observations to remote military posts, to some of the posts and lighthouses on our coasts, and to certain other points to be designated in the memorial.

Resolved, That the Franklin Institute of Pennsylvania be invited to join in said memorial, and in a circular to the Legislatures of the States, and to individuals.

Dr. Boyé exhibited to the Society a specimen of Brown Hematite Ore from Chester Ridge, three-fourths of a mile west of

Chester Furnace, Huntingdon County, Pa., containing a small quantity of *Oxide of Cobalt*,—the surface of the ore is in some places covered with a thin film of oxide of cobalt. It also contains a moderate proportion of manganese.

The ore was dissolved in chlorohydric acid, the solution neutralized by ammonia, and then the iron precipitated by boiling, after previous dilution with water. The oxide of cobalt which remained in the solution with the manganese, was discovered both by its reaction in the moist way, and by the blue bead it yielded with salt of phosphorus.

Dr. B. also stated that by a visit to Colemanville Iron Works, Lancaster County, Pa., he had found on the outer surface of the coal-pits for charring wood, a yellowish white deposition.

On examining this deposition it was found to consist of acetate of lime. By dissolving it in water and treating it with animal charcoal, the acetate of lime was obtained perfectly colourless. Dr. Boyé remarked, that the lime was probably derived from the soil, but as acetate of lime was not volatile, it must be carried up mechanically by the vapours of pyroligneous acid and other volatile substances, given off by the process of charring.

Mr. Haldeman called the attention of the Society to the apparent projection of a planet on the disk of the moon, while observing occultations. This appearance he ascribed to a state of tension of the retina, which preserved the impression of the object after the eye was removed from it. Further remarks were made on the subject by Prof. Frazer, Drs. Dunglison, Patterson, Coates, Bache, and Mr. G. W. Smith.

Dr. Coates observed, that though he had not been able to verify all the laws of ocular spectra described by Charles Darwin, a circumstance which inclined him to the opinion that these phenomena were materially modified in different individuals, he had observed the sudden disappearance of spectra. Spectra did not decline indefinitely, or till the death of the individual experiencing them, by the law of an infinite series; they terminated abruptly. Our eyes were not constructed with mathematical exactness, nor capable of indefinite minuteness; resembling, in this respect, those of many insects in which a great number of facets replaced the surface of a sphere. Various irregular, nervous sounds, produced in the ear, also termi-

nated abruptly. There appeared to take place in the nervous expansions of the organs of sense, a process resembling that of *attention*, as exhibited in the operations of the brain; and this was frequently the cause why our perceptions were at one time so much keener than at others.

Dr. Patterson exhibited to the Society a second diamond from Hall County, Georgia, nearly three carats in weight, and considered to be of the first water. Mr. Peale stated that he had a specimen of granular quartz, supposed to be the gang of the diamond, that was decidedly flexible.

Stated Meeting, March 6.

Present, sixteen members.

Dr. Patterson, Vice-President, in the Chair.

A letter was read from the New York Historical Society, dated New York, February 26, 1846, in relation to the printing, by Congress, of only one hundred copies of the Memoirs on Subjects of Science, prepared by gentlemen of the United States Exploring Expedition, and it was referred to the Committee appointed on the same subject at the last meeting.

The following donations were announced:—

FOR THE LIBRARY.

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. XI. Feb. 1846. No. 2. 8vo.—*From Dr. Patterson.*

The Medical News and Library. Vol. IV. March, 1846. No. 39. 8vo.—*From Messrs. Lea & Blanchard.*

Annual Report of the Directors and Physicians of the Kentucky Lunatic Asylum to the Legislature. December Session, 1845. Frankfort, Ky. 1846. 8vo.—*From the Kentucky Historical Society.*

Report from the Secretary of the Treasury, communicating a Report of the Superintendent of the Coast Survey, showing the progress

of the Work under his charge, during the year ending November, 1845. 8vo.—*From Prof. A. D. Bache.*

Eighth Geological Report to the Twenty-sixth General Assembly of the State of Tennessee, made November 1st, 1845. By G. Troost, M.D.—*From the Author.*

The Oregon Question. By Albert Gallatin. New York, 1846. 8vo.—*From the New York Historical Society.*

ADDITION TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. No. 551. 4to.

The Committee, consisting of Mr. A. D. Bache, Dr. R. M. Patterson, and Mr. T. M'Ewen, on the paper of Mr. Nulty, entitled, "On the Determination of Azimuths by the Star Polaris," reported in favour of publication, which was accordingly ordered.

Dr. Bache informed the Society of the death, on the 4th of March, of Mr. Joseph Reed, aged 73.

Mr. Peale offered, for the examination of members, a specimen of the flexible granular quartz referred to at the last meeting.

Prof. Kendall read a letter from Prof. Stephen Alexander, suggesting for consideration the following hypothesis, to account for the peculiarities in the appearance of Von Biela's comet. It supposes a partial change to have taken place similar to that which, according to Sir John Herschell, would seem to have been experienced by Halley's comet about the time of its perihelion passage in 1835.

The central portion of Von Biela's comet has been transformed into invisible vapour, and the portion designated by Lieut. Maury as "Biela," seems to be more sensitive to such a change than "No. 2." The progress of this change would seem to account for—

1st. The apparent rupture of the comet.

2d. The seeming recess of the two portions, as observed by Mr. Walker.

3d. The comparative decay of "Biela" observed by Lieut. Maury.

4th. The comparative increase of the same since the perihelion passage, observed by the same astronomer.

5th. The light arch of cometary matter mentioned in Lieut. Maury's account of his observation, Feb. 19th.

6th. If the hypothesis is true, the two portions will probably soon appear to be reunited.

Prof. Kendall also stated some of the results of his own observations, which agree with those above referred to. He had observed the comet "Biela" on the previous evening, but could find no trace of "No. 2," though perhaps it might have been seen under more favourable atmospheric circumstances.

Prof. Kendall referred to a new comet, discovered at Cambridge, Mass., and which had also been seen at Washington.

Stated Meeting, March 20.

Present, twenty-eight members.

Dr. CHAPMAN, President, in the Chair.

A letter was received and read:—

From Mr. John Cook, informing the Society of a donation to its Library, from Prof. Schröder of Upsala, Sweden,

The following donations were announced:—

FOR THE LIBRARY.

Mémoires de l'Académie Impériale des Sciences de Saint-Pétersbourg. VIme. Série. Sciences Mathématiques, Physiques et Naturelles. Tome Sixième. Seconde Partie: Sciences Naturelles. Tome quatrième, 6me. livraison. Saint-Pétersbourg, 1845. 4to.—*From the Imperial Academy of St. Pétersbourg.*

Mémoires de l'Académie Impériale des Sciences de Saint-Pétersbourg. VIme. Série. Sciences Politiques, Histoire, Philologie. Tome cinquième. 5me. et 6me. livraison. Saint-Pétersbourg, 1845. 4to.—*From the same.*

Mémoires présentés à l'Académie Impériale des Sciences de Saint-Pétersbourg. Par divers Savans, et lus dans ses Assemblées. Tome quatrième. 6me. livraison. Saint-Pétersbourg. 1845. 4to.—*From the same.*

Recueil des Actes de la Séance Publique de l'Académie Impériale des Sciences de Saint-Pétersbourg, tenue le 29 Décembre, 1844.

Avec les Portraits de Ph. Krug et de C. B. Trinius. Saint-Pétersbourg, 1845. 4to.—*From the same.*

The Transactions of the Linnean Society of London. Vol. XIX. Part the Fourth. London, 1845. 4to.—*From the Society.*

List of the Linnean Society of London. 1845. 4to.—*From the same.*

Proceedings of the Linnean Society of London. Nos. XXIII, XXIV, and XXV. 8vo.—*From the same.*

Monthly Notices of the Royal Astronomical Society. Vol. VII. Nos. 1 and 2. Nov. 14, Dec. 12, 1845. 8vo.—*From the Society.*

The Journal of the Royal Geographical Society of London. Vol. XV. Part 2. 1845. 8vo.—*From the Society.*

Twenty-fifth Report of the Council of the Leeds Philosophical and Literary Society, at the close of the Session, 1844-45. Leeds, 1845. 8vo.—*From the Society.*

The African Repository and Colonial Journal. Vol. XXII. March, 1846. No. 3. 8vo.—*From the American Colonization Society.*

The American Journal of Science and Arts. Conducted by Professor Silliman, B. Silliman, jun., and James D. Dana. Second Series. No. 2. March, 1846. 8vo.—*From the Editors.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. II. No. 2. January, 1846. 8vo.—*From the Editor.*

The Constitution of Matter, and Laws of Motion, as deducible from, and explanatory of, the Physical Phenomena of Nature. By J. L. Riddell, M.D. From the New Orleans Journal of Medicine. *From the Author.*

Twenty-ninth Congress, 1st Session. House of Representatives, War Department, Document, No. 95. Pension Laws now in force.—*From the Hon. Joseph R. Ingersoll.*

Twenty-seventh Annual Report of the Controllers of the Public Schools of the City and County of Philadelphia, for the Year ending June 30, 1845.—*From Prof. John S. Hart.*

A Tabular Statement relating to the Tax on Real and Personal Estate for State purposes, the Revenue arising from that and other Sources, and to the Payments to Common Schools, for the Periods therein named.—*From Charles B. Trego, Esq.*

A Memoir of James De Veaux, of Charleston, S. C. By Robert W. Gibbes, M.D. Columbia, S. C. 1846. 8vo.—*From the Author.*

The report of the Committee upon the communication from

the Academy of Arts and Sciences of Boston, was read, and on motion of Dr. Patterson, was referred back to the Committee for action.

Mr. Lea called the attention of the Society to a fine specimen of Flexible Quartz, (Quartz hyalin granulaire, Haüy,) from Spartenberg District, S. C., obtained by Dr. Gibbs from that locality.

The specimen was twelve inches long, and about the eighth of an inch thick, curving by a gentle force into an arc, the versed sign of which measured full one inch. Specimens of considerable length of this singularly constructed mineral, are obtained at this locality.

Mr. Justice stated he had in his possession a specimen of the same kind, from Stokes County, North Carolina, about eight inches long and three-fourths of an inch thick, which exhibited the property of flexibility in a remarkable degree, notwithstanding its thickness. He remarked, it was supposed the flexibility arose from the particles of quartz, which pervaded the mass, being of an imbricated or flattened form, and thus overlapping each other, instead of being granular, as in other sandstones.

Prof. Frazer laid on the table, the number of the Bulletin for December, 1845.

On motion of the same gentleman, it was resolved, that the Finance Committee lay before the Society at the next meeting, a statement of its assets and liabilities.

Special Meeting, April 1.

Present, thirty-four members.

Dr. Chapman, President, in the Chair.

The President stated that he had called a special meeting at the request of the Committee appointed at the last meeting, on the subject of the debt due to the late Nathan Dunn.

Stated Meeting, April 3.

Present, thirty-four members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the Society of Antiquaries of London, dated Feb. 20, 1846, acknowledging the receipt of Vol. XI. Part 2, of the Transactions, and of Nos. 32, 33, of the Proceedings of the Society:—and,

From Mr. Townsend Ward, dated Philadelphia, April 3, 1846, requesting the use of a portrait of Heckewelder, belonging to the Society, for the purpose of making a lithographic copy.

On motion of Mr. Ord, permission was given to Mr. Ward.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London. For the Year 1845. Part II. London, 1845. 4to.—*From the Royal Society.*

List of the Royal Society of London, 30th Nov. 1845. 4to.—*From the same.*

Proceedings of the Royal Society of London. No. 61. 8vo.—*From the same.*

Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the Year 1843, under the direction of George Biddell Airy, Esq., M.A., Astronomer Royal. Published by order of the Board of Admiralty, in obedience to Her Majesty's command. London, 1845. 4to.—*From the Royal Society.*

Annales des Mines. Redigées par les Ingénieurs des Mines. Quatrième Série. Tome VII. 2e Livraison de 1845. 8vo.—*From the Engineers of Mines at Paris.*

Journal Asiatique. Quatrième Série. Tome VI. No. 27. Septembre, Octobre, 1845. 8vo.—*From the Asiatic Society of Paris.*

Proceedings of the Historical Society of Pennsylvania. Vol. I. Nos. 1 to 4, inclusive. 1845. 8vo.—*From the Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XI. March, 1846. No. 3. 8vo.—*From Dr. Patterson.*

Astronomical Observations made at the Radcliffe Observatory, Oxford, in the Year 1843. By Manuel J. Johnson, M.A., Radcliffe Observer. Vol. IV. Published by order of the Radcliffe Trustees. Oxford, 1845. 8vo.—*From the Radcliffe Trustees.*

The Medical News and Library. Vol. IV. No. 40. April, 1846. 8vo.—*From Messrs. Lea & Blanchard.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XXII. New Series. April, 1846. 8vo. *From the Editor.*

Incunabula Artis Typographicæ in Suecia. Quibus Sollemnia Inaugurationis Philosophicæ a condita Academia Upsaliensi Septuagesimæ quintæ celebranda Litterarum Patronis Hospitibus Patribus civibusque Academicis et Urbicis. Indicit legitime constitutus promotor Johannes Henricus Schröder. Upsaliæ, 1842. 4to. *From the Author.*

Kongl. Vetenskaps-Societeten i Upsala. Dess Stiftelse, utbildning och verksamhet Berättelse af J. H. Schröder. Upsala, 1845. 8vo.—*From the Author.*

Report of the Majority and Minority of the Select Committee of the House, relative to the Abrogation of Capital Punishment. Harrisburg, 1846. 8vo.—*From C. B. Trego, Esq.*

Memoir of the Life and Character of John P. Emmet, M.D., Professor of Chemistry and Materia Medica in the University of Virginia. By George Tucker, Professor of Moral Philosophy in the University of Virginia. Philadelphia, 1845. 8vo.—*From the Author.*

Map of the Oregon Territory, by the United States Exploring Expedition, Charles Wilkes, Esq., Commander. *From Hon. Joseph R. Ingersoll.*

Histoire des Plantes de la Guiane Française, rangées suivant la Méthode sexuelle, avec plusieurs Mémoires sur différens Objets intéressans, relatifs à la Culture et au Commerce de la Guiane Française, et une Notice des Plantes de l'Isle-de-France. Par M. Fusée Aublet. Paris, 1775. 4to. Vols. 1 to 3, the 4th volume wanting.—*From Dr. Philip Tidyman, of Charleston, South Carolina.*

Dictionnaire de Chimie, contenant la Théorie et la Pratique de cette Science, son application à la Physique, à l'Histoire Naturelle, à la Médecine, et aux Arts dépendans de la Chimie. Par M.

Macquer. Seconde Édition. Paris, 1778. 2 Vols. 4to.—*From the same.*

Le Nouveau Parfait Maréchal, ou la Connoissance Générale et Universelle du Cheval. Par M. Fr. A. de Garsault. Troisième Édition. Paris, 1755. 4to.—*From the same.*

Œuvres de M. Franklin, Docteur ès Loix. Traduites de l'Anglais sur la Quatrième Édition. Par M. Barbeu Dubourg. Avec des additions nouvelles. Paris, 1773. 2 Vols. in 1. 4to.—*From the same.*

Histoire Philosophique et Politique des Établissemens et du Commerce des Européens dans les deux Indes. Par Guillaume Raynal. Geneva, 1780. 10 Volumes. 8vo.—*From the same.*

Recueil concernant le Tribunal de Nosseigneurs les Maréchaux de France. Par M. De Beaufort. Paris, 1784. 2 Vols. 8vo. *From the same.*

Histoire de l'Administration de Lord North, Ministre des Finances en Angleterre, depuis 1770, jusqu'en 1782, et de la Guerre de l'Amérique Septentrionale, jusqu'à la Paix. Suivie du Tableau Historique des Finances d'Angleterre, depuis Guillaume III. jusqu'en 1784. Paris, 1784. 2 Vols. 8vo.—*From the same.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 552 and 553. 4to.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXI. No. 17 to 25, inclusive. 4to.

Dr. Boyè exhibited several mineralogical specimens from the bituminous coal measures of Pennsylvania; among others, sulphate of magnesia, both in fibrous crystals and in porous masses.

It was found in the neighbourhood of Salzburg, on the Kiskiminitas river, under a protruding ledge of rocks, from which the water, charged with the sulphate of magnesia, drops down.

Dr. B. also exhibited several specimens of argillaceous carbonate of iron, or nodular iron ore, containing, inside, a white crystalline mineral, which he had found to be sulphate of baryta; and also a curious nodular iron ore, from the neighbourhood of Brighton, on the Beaver creek, consisting of small oolitic concretions of iron ore (carbonate of iron with sesquioxide of iron) of a light brownish colour, and imbedded in a white sparry mass, consisting of a mixture of sulphate of baryta with some sulphate of lime and silica.

Mr. C. C. Biddle, from the Committee of Finance, in accordance with the resolution passed by the Society at its last meeting, made a report on the financial condition of the Society.

Stated Meeting, April 17.

Present, thirty-four members.

Dr. CHAPMAN, President, in the Chair.

Letters were announced and read:—

From the Librarian of the New York Historical Society, dated March, 1846, acknowledging the reception of donations from this Society:—

From Don Pedro de Angelis, Buenos Ayres, dated Dec. 5, 1845, with a donation to the Library: and,—

From Col. J. J. Abert, Washington, dated April 15, 1846, in relation to an obituary notice of Mr. Nicollet.

Professor Norton, a newly elected member, was introduced, and took his seat.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, ou Figures et Descriptions de Plantes Belgiques. Par Jan Kops et J. E. Van der Trappen. No. 137. 4to.—*From H. M. the King of the Netherlands.*

Collections of the Massachusetts Historical Society. Vol. IX. of the Third Series. Boston, 1846. 8vo.—*From the Society.*

Summary of the Transactions of the College of Physicians of Philadelphia. From November, 1845, to March, 1846, inclusive. Vol. I. No. XI. 8vo.—*From the College.*

Annals of the Lyceum of Natural History of New York. Vol. IV. February, 1846. No. 5. 8vo.—*From the Lyceum.*

The African Repository and Colonial Journal. Vol. XXII. April, 1846. No. 4. 8vo.—*From the American Colonization Society.*

Catalogue of Works in Refutation of Methodism, from its Origin in 1729, to the Present Time. Compiled by H. C. Decanver. Philadelphia, 1846. 8vo.—*From the Compiler.*

Description of some New Species of Shells. By John H. Redfield. From the 6th Volume of Annals of New York Lyceum of Natural History.—*From the Author.*

Political Economy: its Objects, Uses, and Principles: considered with reference to the Condition of the American People. With a Summary for the use of Students. By A. Potter, D.D., Professor of Moral Philosophy in Union College. New York, 1842. 12mo. *From the Author.*

Handbook for Readers and Students; intended as a Help to Individuals, Associations, School Districts, and Seminaries of Learning, in the Selection of Works for Reading, Investigation, or Professional Study. In Three Parts. By A. Potter, D.D. New York, 1845. 12mo.—*From the Author.*

The School and the Schoolmaster. A Manual for the Use of Teachers, Employers, Trustees, Inspectors, &c. &c. In Two Parts. Part I. by Alonzo Potter, D.D., of New York. Part II. by Geo. B. Emerson, A.M., of Massachusetts. New York, 1846. 2 Vols. 12mo.—*From the Right Reverend Bishop Potter.*

A Discourse pronounced at Schenectady, July 22, 1845, on the Fiftieth Anniversary of the Foundation of Union College. By A. Potter, D.D. Schenectady, 1845. 8vo.—*From the Author.*

Coleccion de Documentos Oficiales sobre la Mision de los Ministros de S. M. Britanica, y S. M. el Rey de los Franceses cerca del Gobierno de Buenos-Aires, encargado de las relaciones exteriores de la Confederacion Argentina. Buenos-Aires, 1845. Folio. *From P. de Angelis.*

Mr. Lea read an obituary notice of the late Mathew Carey, Esq., prepared at the request of the Society. On motion of Mr. C. C. Biddle, it was placed at the disposal of the author.

Prof. Frazer read a letter from Major J. D. Graham, dated April 14th, 1846, communicating a paper for the Transactions, on the Dip of the Needle, at three additional stations.

It was referred to the following Committee:—Mr. Frazer, Dr. Patterson, Mr. Walker.

The Society having considered and disposed of all other business, proceeded to an election for members; and upon an examination of the ballot boxes, Mr. Lewis Waln, and Professor James H. Rogers, of this city, were announced as duly elected.

On motion of Mr. Ord, a copy of the Bulletin was ordered

to be presented to the Historical Society of Pennsylvania, and also to the Right Rev. Alonzo Potter; and that the Bulletin be hereafter regularly sent to the Historical Society.

Stated Meeting, May 1.

Present, seventeen members.

Dr. Patterson, Vice-President, in the Chair.

Letters were received and read:—

From the Royal Institution of London, dated February 23, 1846:—

From the Botanical Society of London, dated London, March, 1846, acknowledging the reception of Nos. 32 and 33 of the Bulletin of the Society:—

From the Horticultural Society of London, dated March 3, 1846:—

From the Geological Society of London, dated Feb. 26, 1846:—

From the Royal Asiatic Society of London, dated Feb. 21, 1846, acknowledging the reception of Vol. IX, Part 2, of the Transactions of this Society, and of Nos. 32 and 33 of the Proceedings:—

From the Académie Royale des Sciences of Stockholm, dated Nov. 1, 1845, acknowledging the reception of Vol. IX, Part 1, of the Transactions, and of Nos. 21, 22, and Nos. 28 to 31 of the Proceedings of this Society, and of Dr. Dunglison's Eulogy on P. S. Duponceau, Esq. Also informing the Society that it had transmitted certain donations for the Library:—

From the Corporation of the University of Cambridge, Mass., dated March 11 and 24, acknowledging the reception of the Proceedings, No. 34, and of Vol. IX, Part 2, of the Transactions:—

From Sir James Clark, dated London, April 2, 1846: from Dr. Holland, dated April 3, 1846: and from Dr. J. H. Rogers,

dated Philadelphia, May 1, 1846, returning their acknowledgments for being made members of the Society:—and

From the Franklin Institute, dated April 11, 1846, replying to a communication from this Society, in relation to the proposal of the Academy of Arts and Sciences, to unite with this Society and the Franklin Institute in a Memorial to the Government, asking an extension of Meteorological Observations, and stating that the Franklin Institute had appointed a Committee to act thereon.

Mr. Lewis Waln, a newly elected member, was introduced, and took his seat.

The following donations were announced:—

FOR THE LIBRARY.

Kongl. Vetenskaps-Akademiens Handlingar, för år 1843. Stockholm, 1844. 8vo.—*From the Royal Academy of Sciences of Stockholm.*

Årsberättelse om Framstegen i Kemi och Mineralogi afgifven den 31 Mars, 1845; af Jac. Berzelius, K. V. Akad. Sek. Stockholm, 1845. 8vo.—*From the same.*

Årsberättelse om Zoologiens Framsteg under åren 1840-1842 till Kongl. Vetenskaps-Akademien afgifven af Zoologiæ Intendenterna vid Rikets Naturhistoriska Museum. Första Delen (Anim. Vertebrata) af C. J. Sundevall. Stockholm, 1844. 8vo.—*From the same.*

Årsberättelse om Zoologiens Framsteg under åren 1843 och 1844 till Kongl. Vetenskaps-Akademien afgifven af Zoologiæ Intendenterna vid Rikets Naturhistoriska Museum. Andra Delen (Insecta, Linn.) af C. H. Boheman. Stockholm, 1845. 8vo.—*From the same.*

Års-Berättelser om Botaniska Arbeten och Upptäckter för åren 1839, 1840, 1841 och 1842, till Kongl. Vetenskaps-Akademien afgifna den 31 Mars åren 1839, 1840, 1841 och 1842. Af Joh. Em. Wikström. Stockholm, 1844. 8vo.—*From the same.*

Ofversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Första Årgången.

1844, Nos. 8 to 10, inclusive.

1845, Nos. 1 to 7, inclusive. 8vo.—*From the same.*

Memoirs of the Royal Astronomical Society. Vol. XV. With four copperplates. London, 1846. 4to.—*From the Society.*

Monthly Notices of the Royal Astronomical Society. Vol. VII. January 9, 1846. No. 3. 8vo.—*From the same.*

Proceedings of the Boston Society of Natural History, January 21, February 18, 1846. 8vo.—*From the Society.*

Proceedings of the Historical Society of Pennsylvania. Vol. I. March, 1846. No. 5. 8vo.—This number contains the Journal of Isaac Senter, physician and surgeon to the troops detached from the American army encamped at Cambridge, Massachusetts, on a secret expedition against Quebec, under the command of Col. Benedict Arnold, in September, 1775.—*From the Society.*

Proceedings of the Providence Franklin Society. Vol. I. April, 1846. No. 1. 8vo.—*From the Society.*

Catalogue of the New York State Library, January 1, 1846.—*From the Trustees.*

Fifty-ninth Annual Report of the Regents of the University of the State of New York, made to the Legislature, March 1, 1846. 8vo. *From the Regents.*

The African Repository and Colonial Journal. Vol. XXII. May, 1846. No. 5. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. XI. April, 1846. No. 4. 8vo.—*From Dr. Patterson.*

An Account of the Portage Rail Road over the Alleghany Mountain, in Pennsylvania. By S. W. Roberts, Principal Assistant Engineer thereon. Philadelphia, 1836. 12mo.—*From the Author.*

Prof. Frazer, on the part of the Committee to whom the communication of Major J. D. Graham, read at the last meeting, was referred, recommended the publication of the same in the Transactions of the Society, which was so ordered.

Dr. Bache reported the death of Prof. T. W. Bessel, of the University of Königsberg, a member of this Society.

Prof. Frazer referred to the principal labours of Prof. Bessel, and moved that Prof. Kendall be requested to prepare a notice of his contributions to science.

Mr. C. O. Boutelle presented to the Society, through Dr. Patterson, a work by him, entitled "Tables of Bearings, Distances, Latitudes, and Longitudes, ascertained by the Astronomical and Trigonometrical Survey of Massachusetts." Dr. Patterson made some observations on this survey of Massa-

chusetts by Messrs. Paine and Borden, a portion of whose labours are contained in the Transactions of this Society. The work of Mr. Boutelle gives the more detailed results of the same undertaking.

Dr. Patterson informed the Society, that the recent solar eclipse was observed at the High School Observatory, by Prof. Kendall and himself. The following note gives the results of their observations:

May 1st, 1846.

Dear Sir,—The observations of the Solar Eclipse of April 24th, and 25th, 1846, made at the High School Observatory, are as follows, in mean time of the Observatory:

Beginning	24*d*	22*h*	46*m*	40*s*.3,	observed by Dr. Patterson.
„	„	„	„	37.3,	„ E. O. Kendall.
„	24	22	46	38.8,	mean.

The power used by yourself with the Plössl was, I think, about 50; and that used with the equatorial was 85.

Very respectfully, yours,
E. OTIS KENDALL.

Dr. R. M. Patterson.

Stated Meeting, May 15.

Present, twenty-one members.

Dr. Chapman, President, in the Chair.

No correspondence was announced.

The following donations were announced:—

FOR THE LIBRARY.

The American Journal of Science and Arts. Conducted by Prof. Silliman, B. Silliman, Jr., and James D. Dana. Second Series. No. 3. May, 1846. 8vo.—*From the Editors.*

A Synopsis of the Fishes of North America. By David Humphreys Storer, M.D. Cambridge (Mass.), 1846. 4to.—*From the Author.*

Tables of Bearings, Distances, Latitudes, Longitudes, &c., ascer-

tained by the Astronomical and Trigonometrical Survey of Massachusetts. Published agreeably to a Resolve of the General Court, by John G. Palfrey, Secretary of the Commonwealth. Boston, 1846. 8vo.—*From Charles O. Boutelle.*

The Medical News and Library. Vol. IV. May, 1846. No. 41. 8vo.—*From Messrs. Lea & Blanchard.*

Facts and Considerations relative to Duties on Books; addressed to the Library Committee of Brown University. By C. C. Jewett. Providence, 1846. 8vo.—*From Mr. John Penington.*

Mr. Alger on New Localities of Rare Minerals, and the Identity of Species supposed to be Distinct. From the Transactions of the Boston Society of Natural History. *From the Author.*

The President announced the death of Dr. Mease, which took place the 14th instant, in the 75th year of his age.

On motion of Dr. Bache, Dr. Elwyn was appointed to prepare an obituary notice of the deceased.

Mr. Lea announced the death of Mr. John Pickering, of Boston, a member of this Society.

The report of the meeting of the Board of Officers and Council, held 8th of May, 1846, was read.

Special Meeting, May 29.

Present, twenty-three members.

Dr. CHAPMAN, President, in the Chair.

Mr. Ord moved that the special business of the meeting be postponed, for the purpose of considering a communication from the Athenian Institute.

A letter was then read from the Secretary of the Athenian Institute, dated May 15th, 1846, conveying a resolution in the following words:—

At a meeting of the Counsellors of the Athenian Institute, held on the evening of May 12th, 1846, the following resolution was unanimously adopted, viz.—

Resolved, That whenever he shall be so directed in writing by this Committee, the Treasurer shall loan to the American Philosophical

Society, held at Philadelphia, for promoting Useful Knowledge, three-fourths of the funds belonging to the Institute, for four years, without interest; and shall loan to the Historical Society of Pennsylvania one-fourth of the remainder of such funds, for four years, without interest; the said loans to be secured by bond and warrant of attorney.

Mr. Sill's letter mentioned that the amount which might be expected by the Society, will be from $700 to $900.

On motion of Dr. Patterson—*Resolved*, That the loan offered by the Athenian Institute be accepted by the Society, and that the President and Treasurer be instructed to affix the corporate seal to the stipulated securities.

Resolved, That the Secretary be instructed to convey to the Counsellors of the Athenian Institute, the acknowledgments of the Society for the aid so liberally tendered.

On motion of Mr. Fraley, the Society proceeded to consider the alteration of the By-laws, proposed at the meeting of the 15th instant.

Stated Meeting, June 19.

Present, twenty-six members.

Dr. Patterson, Vice-President, in the Chair.

Letters were announced and read:—

From the Linnean Society of London, dated April 2d, 1846, acknowledging the receipt of the Transactions of the Society, Vol. IX. Part 2d, and of the Proceedings, Nos. 32 and 33:—

From the Royal Institute of Sciences, Belles Lettres and Arts, of the Low Countries, dated Amsterdam, Jan. 23, 1846, on transmitting a part of the Transactions of the Institution:—

From the Historical Society of New York, dated New York, May 22d, 1846, on transmitting copies of a circular in reference to proposed changes in the tariff, as affecting the interests of literary institutions:—

From the Local Committee of the Association of American

Geologists and Naturalists, dated New York, June 5th, 1846, transmitting copies of circulars of the Association:—

From Signor Zantedeschi, dated Venice, Aug. 14, 1845, on transmitting a donation to the Society:—

From Von Hammer Purgstall, dated Vienna, Feb. 25, 1846, on transmitting a donation to the Society:—

From the friends of the late Prof. Bessel, dated Konigsberg, March 21, 1846, announcing his death:—

From the family of the late Mr. Pickering, of Boston, dated Boston, June 9th, 1846, on returning a MS. of Mr. S. S. Haldeman's to the Secretary:—and,

From Mr. Henry M'Ilvaine, dated Philadelphia, June 11, 1846, asking for two Mexican silver drinking cups, and a cestus, deposited many years ago by Mr. Joseph E. Bloomfield.

On motion of Mr. Ord, the Curators were authorized to return the articles deposited in the Cabinet to Mr. M'Ilvaine, as the representative of Mr. Bloomfield.

The following donations were announced:—

FOR THE LIBRARY.

Bulletin de la Société de Géographie. Troisième Série. Tome IV. Paris, 1845. 8vo.—*From the Society.*

Journal Asiatique. Quatrième Série. Tome VI. No. 28. Novembre, 1845. No. 29. Décembre, 1845. Tome VII. No. 30. Janvier, 1846. No. 31. Février, 1846. 8vo.—*From the Asiatic Society of Paris.*

Annales des Mines. Quatrième Série. Tome VII. 3e Livraison de 1845. Tome VIII. 4e Livraison de 1845. 8vo.—*From the Engineers of Mines, of Paris.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland. No. XVI. Part 2. London, 1846. 8vo.—*From the Society.*

Monthly Notices of the Royal Astronomical Society. Vol. VII. Nos. 4, 5, and 6. 8vo.—*From the Society.*

The Quarterly Journal of the Geological Society of London. Edited by the Vice-Secretary of the Geological Society. Volume the First. 1845. Volume the Second. Part 1. No. 5. 1846. 8vo. *From the Geological Society.*

Nieuwe Verhandelingen der Eerste Klasse van het Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoone

Kunsten te Amsterdam. Twaalfden Deels eerste Stuk. Amsterdam, 1846. 4to.—*From the Royal Institute, Amsterdam.*

Proceedings of the Boston Society of Natural History. March 4th and 18th, 1846. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. III. Nos. 1 and 2. Title and Index to Vol. II. 8vo.—*From the Academy.*

The African Repository and Colonial Journal. Vol. XXII. June, 1846. No. 6. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XI. Nos. 5 and 6. 8vo.—*From Dr. Patterson.*

The Annals and Magazine of Natural History, including Zoology, Botany, and Geology. Vol. XVI. Nos. 106, 107, and 108. Vol. XVII. Nos. 109, 110, and 111. 8vo.—*From Sir Wm. Jardine, Bart.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. II. No. 12. April, 1846. 8vo.—*From the Editor.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Uitgegeven door J. Van der Hoeven, M.D., en W. H. de Vriese, M.D. Twaalfde Deel, 3e en 4e Stuk. Leiden, 1845. 8vo.—*From the Editors.*

Waarnemingen en Proeven over de Onlangs Geheerscht Hebbende Ziekte der Aardappelen, door G. Vrolik.—*From W. Vrolik.*

Verslag der Eerste Klasse van het Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoone Kunsten, over de heersehende ziekte der Aardappelen.—*From the same.*

Trattato del Magnetismo e della Elettricità dell' Ab. Francesco Zantedeschi. Parte II. Venezia, 1845. 8vo.—*From the Author.*

Descrizione di una Machina a disco per la doppia Elettricità e delle esperienze esequite con essa comparativamente a quelle dell' elettromotore Voltiano del Prof. Ab. Francesco Zantedeschi. Venezia, 1845.—*From the same.*

Geological Survey of Canada. Report of Progress for the Year 1844. Montreal, 1846. 8vo.—*From W. E. Logan, Provincial Geologist.*

Jahrbücher der Literatur. Nos. 109 to 112, inclusive. January to December, 1845. 8vo.—*From Baron Von Hammer Purgstall.*

Twenty-ninth Congress, First Session. House of Representatives. Document, No. 140. Report of the Commissioners of Patents for the Year 1845. 8vo.—*From the Hon. Joseph R. Ingersoll.*

Report to the Committee of the City Council appointed to obtain the Census of Boston for the Year 1845, embracing Collateral Facts and Statistical Researches, illustrating the History and Condition of the Population, and their means of Progress and Prosperity. By Lemuel Shattuck. Boston, 1846. 8vo.—*From the Author.*

The Mutations of the Earth; or an Outline of the more Remarkable Physical Changes, of which, in the progress of time, this Earth has been the subject and the theatre, &c. &c. Being the Anniversary Discourse for 1846, delivered before the Lyceum of Natural History of New York. By John Augustine Smith, M.D. 8vo.—*From the Author.*

Observations sur le Voyage au Darfour, etc. Par M. Jomard. 8vo. *From the Author.*

Seconde Note sur une Pierre gravée, trouvée dans un ancien Tumulus Américain. Lue à l'Académie des Inscriptions et Belles-Lettres, le 10 Novembre, 1845. Par M. Jomard. 8vo.—*From the same.*

La Collection Géographique de la Bibliothèque Royale, en 1845. Par M. Jomard.—*From the same.*

State of the Accounts of the Pennsylvania Hospital, for the Year ending Fourth Month 25, 1846. 8vo.—*From the Managers.*

The Medical News and Library. Vol. IV. June, 1846. No, 42. 8vo.—*From Messrs. Lea & Blanchard.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten, Nos. 554, 555, 556. March 16th, April 2d and 8th. Altona, 1846. 4to.

Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences. Tome XXI. No. 26. Décembre, 1845. Tome XXII. Nos. 1 to 12 inclusive. Janvier 5 à Mars 23, 1846. 4to.

Annales de Chimie et de Physique. Troisième Série. Tome XVI. Paris, 1846.

The presiding officer announced the death of Mr. Redmond Conyngham, of Paradise, County of Lancaster, a member of this Society, who died on the 16th inst., at the age of 64. On motion of Mr. Ord, Bishop Potter was requested to prepare an obituary notice of the deceased.

A portion of a communication from Miss Reynolds to the Rev. Archibald Alexander, of Princeton, detailing a condition

of two distinct states of consciousness, of which she described herself as the subject, was read.

On motion, the communication was referred to a Committee, consisting of Dr. Hays, Dr. Coates, and Dr. Bell.

Prof. Henry presented a paper from Capt. Stockton, U. S. Navy, entitled, "On some of the Results of a Series of Experiments, relative to different parts of Gunnery," which was referred to a Committee, consisting of Prof. Henry, Prof. Frazer, and Dr. Patterson.

A letter from S. D. Ingham to Dr. Patterson was read, detailing cases in which the telegraphic wires were struck by lightning, and asking the attention of the Society to some interesting questions connected with the mode in which the wires may be affected by electricity.

New Hope, 5th June, 1846.

My dear Sir,—I have recently observed a fact, which it may be interesting to investigate. During a heavy *thunder shower*, as we say, on the 25th ult., several poles which support the wires of the new telegraph were stricken by the lightning. In one case, *four* in succession; and in another, *two;* this happened within three-quarters of a mile of my house. I hear, also, that many others between this and Doylestown are also marked with the lightning. The wires do not appear to be affected. The first appearance of effect on the poles is where the tenon enters the cross-bar on the top. A knowledge of the modus in which the electric charge passes along the wires, might aid in determining whether the telegraph, as constructed, will be a protection, or increase the danger from lightning. Why does the electricity leave the copper wire, and pass off into wood, without affecting the wire? We want to know by experiment, from those who are skilled in these matters, and are provided with apparatus, whether our security is increased or lessened by the construction of the telegraphic machinery. The poles are set along the road upon which persons are constantly passing with horses, carriages, &c., which, for aught we know, may be as likely to attract the electric matter from the surcharge as a wooden pole; and if such be the fact, what is the best remedy? Will frequent conductors on the poles be a sufficient security?

This subject deserves consideration in another point of view; for if it should happen that any person should be killed by lightning on the

road near the conducting wires, the telegraph will very probably soon be demolished, and might not easily be again renewed.

Will you have the goodness to present this subject to the consideration of the Philosophical Society, and invite the attention of the members to it; and accept the assurance of the very great respect of

Your most obedient,

Dr. Robt. Patterson. S. D. INGHAM.

Professor Henry, to whom the foregoing letter was referred, made the following report:—

The action of the electricity of the atmosphere on the wires of the electrical telegraph, is at the present time a subject of much importance, both on account of its practical bearing, and the number of purely scientific questions which it involves. I have accordingly given due attention to the letter referred to me, and have succeeded in collecting a number of facts in reference to the action in question. Some of these are from the observations of different persons along the principal lines, and others from my own investigations during a thunder storm on the 19th of June, when I was so fortunate as to be present in the office of the telegraph in Philadelphia, while a series of very interesting electrical phenomena was exhibited. In connexion with the facts derived from these sources, I must ask the indulgence of the Society in frequently referring, in the course of this communication, to the results of my previous investigations in dynamic electricity, accounts of which are to be found in the Proceedings and Transactions of this Institution.

From all the information on the subject of the action of the electricity of the atmosphere on the wires of the telegraph, it is evident that effects are produced in several different ways.

1. The wires of the telegraph are liable to be struck by a direct discharge of lightning from the clouds, and several cases of this kind have been noticed during the present season. About the 20th of May the lightning struck the elevated part of the wire, which is supported on a high mast at the place where the telegraph crosses the Hackensack river. The fluid passed along the wire each way from the point which received the discharge, for several miles, striking off at irregular intervals down the supporting poles. At each place where the discharge to a pole took place, a number of sharp explosions were heard in succession, resembling the rapid reports of several rifles. During another storm, the wire was struck in two places in Pennsyl-

vania, on the route between Philadelphia and New York; at one of these places twelve poles were struck, and at the other eight. In the latter case, the remarkable fact was observed, that every other pole escaped the discharge; and the same phenomenon was observed, though in a less marked degree, near the Hackensack river. In some instances the lightning has been seen coursing along the wire in a stream of light; and in another case it is described as exploding from the wire at certain points, though there were no bodies in the vicinity to attract it from the conductor.

In discussing these, and other facts to be mentioned hereafter, we shall, for convenience, adopt the principles and language of the theory which refers the phenomena of electricity to the action of a fluid, of which the particles repel each other, and are attracted by the particles of other matter. Although it cannot be affirmed that this theory is an actual representation of the cause of the phenomena, as they are produced in nature, yet it may be asserted that it is, in the present state of science, an accurate mode of expressing the laws of electrical action, so far as they have been made out; and that though there are a number of phenomena which have not as yet been referred to this theory, there are none which are proved to be directly at variance with it.

That the wires of the telegraph should be frequently struck by a direct discharge of lightning, is not surprising, when we consider the great length of the conductor, and, consequently, the many points along the surface of the earth through which it must pass, peculiarly liable to receive the discharge from the heavens. Also, from the great length of the conductor, the more readily must the repulsive action of the free electricity of the cloud drive the natural electricity of the conductor to the farther end of the line, thus rendering more intense the negative condition of the nearer part of the wire, and, consequently, increasing the attraction of the metal for the free electricity of the cloud. It is not, however, probable that the attraction, whatever may be its intensity, of so small a quantity of matter as that of the wire of the telegraph, can of itself produce an electrical discharge from the heavens: although, if the discharge were started by some other cause, such as the attraction of a large mass of conducting matter in the vicinity, the attraction of the wire might be sufficient to change the direction of the descending bolt, and draw it in part or in whole to itself. It should also be recollected, that on account of the perfect conduction, a discharge on any part of the wire

must affect every other part of the connected line, although it may be hundreds of miles in length.

That the wire should give off a discharge to a number of poles in succession, is a fact I should have expected, from my previous researches on the lateral discharge of a conductor transmitting a current of free electricity. In a paper on this subject, presented to the British Association in 1837, I showed that when electricity strikes a conductor explosively, it tends to give off sparks to all bodies in the vicinity, however intimately the conductor may be connected with the earth. In an experiment in which sparks from a small machine were thrown on the upper part of a lightning rod, erected in accordance with the formula given by the French Institute, corresponding sparks could be drawn from every part of the rod, even from that near the ground. In a communication since made to this Society, I have succeeded in referring this phenomenon to the fact, that during the transmission of a quantity of electricity along a rod, the surface of the conductor is charged in succession, as it were, by a wave of the fluid, which, when it arrives opposite a given point, tends to give off a spark to a neighbouring body, for the same reason that the charged conductor of the machine gives off a spark under the same circumstances.

It might at first be supposed that the redundant electricity of the conductor would exhaust itself in giving off the first spark, and that a second discharge could not take place; but it should be observed, that the wave of free electricity, in its passage, is constantly attracted to the wire by the portion of the uncharged conductor which immediately precedes its position at any time; and hence but a part of the whole redundant electricity is given off at one place; the velocity of transmission of the wave as it passes the neighbouring body, and its attraction for the wire, preventing a full discharge at any one place. The intensity of the successive explosions is explained by referring to the fact, that the discharge from the clouds does not generally consist of a single wave of electricity, but of a number of discharges along the same path in rapid succession, or of a continuous discharge which has an appreciable duration; and hence the wire of the telegraph is capable of transmitting an immense quantity of the fluid thus distributed over a great length of the conductor.

The remarkable facts of the explosions of the electricity into the air, and of the poles being struck in interrupted succession, find a plausible explanation in another electrical principle which I have established, namely, in all cases of the disturbance of the equili-

brium of the electrical plenum, which we must suppose to exist throughout all terrestrial space, the state of rest is attained by a series of diminishing oscillations. Thus, in the discharge of a Leyden jar, I have shown that the phenomena exhibited cannot be explained by merely supposing the transfer of a quantity of fluid from the inner to the outer side of the jar; but in addition to this we are obliged to admit the existence of several waves, backwards and forwards, until the equilibrium is attained. In the case of the discharge from the cloud, a wave of the natural electricity of the metal is repelled each way from the point on which the discharge falls, to either end of the wire, is then reflected, and in its reverse passage meets in succession the several waves which make up the discharge from the cloud. These waves will therefore interfere at certain points along the wire, producing, for a moment, waves of double magnitude, and will thus enhance the tendency of the fluid at these points to fly from the conductor. I do not say that the effects observed were actually produced in this way; I merely wish to convey the idea that known principles of electrical action might, under certain circumstances, lead us to anticipate such results.

2. The state of the wire may be disturbed by the conduction of a current of electricity from one portion of space to another, without the presence of a thunder cloud; and this will happen in case of a long line, when the electrical condition of the atmosphere which surrounds the wire at one place is different from that at another. Now it is well known that a mere difference in elevation is attended with a change in the electrical state of the atmosphere. A conductor, elevated by means of a kite, gives sparks of positive electricity in a perfectly clear day; hence, if the line of the telegraph passes over an elevated mountain ridge, there will be continually, during clear weather, a current from the more elevated to the lower points of the conductor.

A current may also be produced in a long level line, by the precipitation of vapour in the form of fog at one end, while the air remains clear at the other; or by the existence of a storm of rain or snow at any point along the line, while the other parts of the wire are not subjected to the same influence.

Currents of sufficient power to set in motion the marking machine of the telegraph have been observed, which must have been produced by some of these causes. In one case the machine spontaneously began to operate without the aid of the battery, while a snow storm was falling at one end of the line, and clear weather existed at the other.

On another occasion, a continued stream of electricity was observed to pass between two points at a break in the wire, presenting the appearance of a gas-light almost extinguished. A constant effect of this kind indicates a constant accession of electricity at one part of the wire, and a constant discharge at the other.

3. The natural electricity of the wire of the telegraph is liable to be disturbed by the ordinary electrical induction of a distant cloud. Suppose a thunder-cloud, driven by the wind in such a direction as to cross one end of the line of the telegraph at the elevation, say of a mile; during the whole time of the approach of the cloud to the point of its path directly above the wire, the repulsion of the redundant electricity with which it is charged would constantly drive more and more of the natural electricity of the wire to the farther end of the line, and would thus give rise to a current. When the cloud arrived at the point nearest to the wire, the current would cease for a moment; and as the repulsion gradually diminished by the receding of the cloud, the natural electricity of the wire would gradually return to its normal state, giving rise to a current in an opposite direction. If the cloud were driven by the wind parallel to the line of the telegraph, a current would be produced towards each end of the wire, and these would constantly vary in intensity with the different positions of the cloud. Although currents produced in this way may be too feeble to set in motion the marking apparatus, yet they may have sufficient power to influence the action of the current of the battery so as to interfere with the perfect operation of the machine.

4. Powerful electrical currents are produced in the wires of the telegraph by every flash of lightning which takes place within many miles of the line, by the action of dynamic induction; which differs from the action last described, in being the result of the influence of electricity *in motion* on the natural electricity of the conductor. The effect of this induction, which is the most fruitful source of disturbance, will be best illustrated by an account of some experiments of my own, presented to the Society in 1843. A copper wire was suspended by silk strings around the ceiling of an upper room, so as to form a parallelogram of about sixty feet by thirty on the sides; and in the cellar of the same building, immediately below, another parallelogram of the same dimensions was placed. When a spark from an electrical machine was transmitted through the upper parallelogram, an induced current was developed in the lower one, sufficiently powerful to magnetize needles, although two floors intervened, and the conductors were separated to the distance of thirty feet. In this

experiment no electricity passed through the floors from one conductor to the other; the effect was entirely due to the repulsive action of the electricity in motion in the upper wire on the natural electricity of the lower. In another experiment, two wires, about 400 feet long, were stretched parallel to each other between two buildings; a spark of electricity sent through one produced a current in the other, though the two were separated to the distance of 300 feet; and from all the experiments, it was concluded that the distance might be indefinitely increased, provided the wires were lengthened in a corresponding ratio.

That the same effect is produced by the repulsive action of the electrical discharge in the heavens, is shown by the following modification of the foregoing arrangement. One of the wires was removed, and the other so lengthened at one end, as to pass into my study, and thence through a cellar window into an adjacent well. With every flash of lightning which took place in the heavens within at least a circle of twenty miles around Princeton, needles were magnetized in the study by the induced current developed in the wire. The same effect was produced by soldering a wire to the metallic roof of the house, and passing it down into the well; at every flash of lightning a series of currents in alternate directions was produced in the wire.

I was also led, from these results, to infer that induced currents must traverse the line of a rail-road, and this I found to be the case. Sparks were seen at the breaks in the continuity of the rail, with every flash of a distant thunder cloud.

Similar effects, but in a greater degree, must be produced on the wire of the telegraph, by every discharge in the heavens; and the phenomena which I witnessed on the 19th of June in the telegraph office in Philadelphia, were, I am sure, of this kind. In the midst of the hurry of the transmission of the congressional intelligence from Washington to Philadelphia, and thence to New York, the apparatus began to work irregularly. The operator at each end of the line announced at the same time a storm at Washington, and another at Jersey City. The portion of the circuit of the telegraph which entered the building, and was connected with one pole of the galvanic battery, happened to pass within the distance of less than an inch of the wire which served to form the connexion of the other pole with the earth. Across this space, at an interval of every few minutes, a series of sparks in rapid succession was observed to pass; and when one of the storms arrived so near Philadelphia that the lightning could be seen, each series of sparks was found to be simultaneous

with a flash in the heavens. Now we cannot suppose, for a moment, that the wire was actually struck at the time each flash took place; and indeed it was observed that the sparks were produced when the cloud and flash were at the distance of several miles to the east of the line of the wire. The inevitable conclusion is, that all the exhibition of electrical phenomena witnessed during the afternoon, was purely the effects of induction, or the mere disturbance of the natural electricity of the wire at a distance, without any transfer of the fluid from the cloud to the apparatus.

The discharge between the two portions of the wire continued for more than an hour, when the effect became so powerful, that the superintendent, alarmed for the safety of the building, connected the long wire with the city gas pipes, and thus transmitted the current silently to the ground. I was surprised at the quantity and intensity of the current; it is well known, that to affect a common galvanometer with ordinary electricity, requires the discharge of a large battery; but such was the quantity of the induced current exhibited on this occasion, that the needle of an ordinary vertical galvanometer, with a short wire, and apparently of little sensibility, was moved several degrees.

The pungency of the spark was also, as might have been expected, very great. When a small break was made in the circuit, and the parts joined by the forefinger and thumb, the discharge transmitted through the hand affected the whole arm up to the shoulder. I was informed by the superintendent, that on another occasion a spark passed over the surface of the spool of wire, surrounding the legs of the horse-shoe magnet at right angles to the spires; and such was its intensity and quantity, that all the wires across which it passed were melted at points in the same straight line as if they had been cut in two by a sharp knife.

The effects of the powerful discharges from the clouds may be prevented, in a great degree, by erecting at intervals along the line, and aside of the supporting poles, a metallic wire, connected with the earth at the lower end, and terminating above at the distance of about half an inch from the wire of the telegraph. By this arrangement the insulation of the conductor will not be interfered with, while the greater portion of the charge will be drawn off. I think this precaution of great importance at places where the line crosses a river, and is supported on high poles. Also in the vicinity of the office of

the telegraph, where a discharge, falling on the wire near the station, might send a current into the house of sufficient quantity to produce serious accidents. The fate of Professor Richman, of St. Petersburg, should be recollected, who was killed, by a flash from a small wire, which entered his house from an elevated pole, while he was experimenting on atmospheric electricity.

The danger, however, which has been apprehended from the electricity leaving the wire and discharging itself into a person on the road, is, I think, very small; electricity, of sufficient intensity to strike a person at the distance of eight or ten feet from the wire, would, in preference, be conducted down the nearest pole. It will, however, in all cases, be most prudent to keep at a proper distance from the wire during the existence of a thunder storm in the neighbourhood.

It may be mentioned as an interesting fact, derived from two independent sources of information, that large numbers of small birds have been seen suspended by the claws from the wire of the telegraph. They had, in all probability, been instantaneously killed, either by a direct discharge, or an induced current from a distant cloud, while they were resting on the wire.

Though accidents to the operators, from the direct discharge, may be prevented by the method before mentioned, yet the effect on the machine cannot be entirely obviated; the residual current which escapes the discharge along the perpendicular wires, must neutralize, for a moment, the current of the battery, and produce irregularity of action in the apparatus.

The direct discharge from the cloud on the wire is, comparatively, not a frequent occurrence, while the dynamic inductive influence must be a source of constant disturbance during the season of thunder storms; and no other method presents itself to my mind at this time for obviating the effect, but that of increasing the size of the battery, and diminishing the sensibility of the magnet, so that, at least, the smaller induced currents may not be felt by the machine. It must be recollected, that the inductive influence takes place at a distance through all bodies, conductors and non-conductors; and hence no coating that can be put upon the wire will prevent the formation of induced currents.

I think it not improbable, since the earth has been made to act the part of the return conductor, that some means will be discovered for insulating the single wire beneath the surface of the earth; the difficulty in effecting this is by no means as great as that of insulating

two wires, and preventing the current striking across from one to the other. A wire, buried in the earth, would be protected, in most cases, from the effect of a direct discharge; but the inductive influence would still be exerted, though perhaps in a less degree.

The wires of the telegraph are too small and too few in number to affect, as some have supposed, the electrical condition of the atmosphere, by equalizing the quantity of the fluid in different places, and thus producing a less changeable state of the weather. The feeble currents of electricity which must be constantly passing along the wires of a long line, may, however, with proper study, be the means of discovering many interesting facts relative to the electrical state of the air over different regions.

A communication was read from Prof. Locke, of Cincinnati, detailing certain phenomena of terrestrial magnetism, as observed in the trap rock of the Brandywine, which exhibited manifest polarity.

Prof. Frazer stated that some of the trap rock of the Brandywine contained magnetic pyrites; and if the rock alluded to by Prof. Locke contained pyrites, it might account for the phenomena.

Mr. Haldeman made the following remarks on the Phonology of the Wyandots.

Missionaries and others have asserted that the peculiarities of this language are such that it cannot be reduced to writing. A tolerably thorough examination of it, with the assistance of Mr. J. E. Armstrong, a native, have shown that this is not the fact. To a person unaccustomed to rigid analysis of the sounds capable of being produced by the organs of speech, it would be found much more difficult to appreciate the peculiarities of the Cherokee.

The Wyandot alphabet is as follows:—1. i (in *field*), 2. ɪ (*fit*), 3. e (*where*), 4. ɛ (*met*), 5. ą̇ (*man*, nasal), 6. a (far), 7. ɑ (*flaw*, nȯt), 8. ǫ (*moan*, *no*, nasal), 9. ʊ (*word*, nůt), 10. u (*rule*, fůll), 11. w (English in *we*), 12. m, 13. n, 14. d, 15″. **t**, 15′. t, 16. ṙ (the smooth English sound, never vibrant), 17. ȷ (*azure*, French j), 18. s (*hiss*), 19. ʃ (*ship*, French *ch*), 20. j (*year*, German *jahr*, Italian *jeri*), 21. g (*gui* in *get*), 22″. **k**, 22′. k, 23. χ (Greek, German *ich*), 24. h (English and German initial in *held*), 25. ˃ (close of the glottis).

The series of vowels is very full, amounting to the five primaries

and five of the secondaries. Several of them are subject to nasality, and two of them, ʌ in *man* (French *vin*), and o in *moan* (French *môn*), present the peculiarity of being almost always nasalized; the o, probably, is never natural.

The labial consonants, except Mi, and the English Wi, are wanting. The 20th letter is frequently nasalized; and when it follows N as a nasal, the two become identical with the Spanish ñ, which is not an uncommon sound. The German combination *ts* is also somewhat common.

Besides the ordinary *gui* and *ki*, there is a *hard ki*, which has every quality of *gui*, except vocality, as in ẋ l l **k**`ē s i, *Allegeny*. This is heard in other Indian languages, and also in German. The *ti* more rarely assumes the same character, as in **t** u ɟ ɛ̨́ ɔ, an *axe*.

The *hi* (No. 24), presents the peculiarity of being heard with its usual force after a vowel, or as a final; and it is frequently nasalized. Nasal syllables of several letters sometimes occur, as ḥ o̧ t ȧ ɔ (the *ear*), a w n d ɛ ɾ r x̧ ḥ a̧ w̧ (for ever). The final *hi*, after the close of the glottis, is merely the breath which follows the subsequent opening of the passage, and should properly be represented by the Greek *spiritus asper* (ʽ).

The Wyandot numerals, from *one* to *ten*, are as follows. The accented syllable and short vowels should be marked; the former with an accentual, the latter with a dot above.

1. s k ȯ t. 2. t ɛ n d í. 3. ɾ ɛ̨ h k. 4. n d ȧ χ k. 5. u̇ w l ɹ. 6. u w a ɟ ö. 7. t s u̇ t ȧ r ɛ́ ɔ h. 8. t ɛ̇ r ɛ́ ɔ h. 9. t r ọ̇ ɔ h. 10. s ɛ̨ h.

Dr. Hays stated that Dr. Warren, of Boston, had given him some information in regard to recently discovered mastodons in New York and New Jersey. One of the skeletons is at Harvard College.

A complete skeleton has been disinterred at Newburgh. It has been purchased by Dr. Warren, and put together by him. It is a tetracaulodon.

Dr. Hays pointed out some marked differences between this and the skeletons of the mastodon, which he had examined.

It was moved, by Prof. Frazer, that the letter read this evening from the Historical Society of New York, be referred to a Committee, with power to take order. Mr. Kane, Dr. Ludlow, and Prof. Hare, were appointed the Committee.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JULY—DECEMBER, 1846. No. 36.

Stated Meeting, July 17.

Present, seventeen members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the Prince of Canino and Musignano, dated Rome, June 8th, 1846, calling the attention of the Society to the approaching meeting of "Scienziati Italiani:" and,—

From Col. Abert, dated Washington, July 14, 1846, accompanied by an obituary notice of the late Mons. Nicollet, prepared by him for the Society.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der Mathem. Physikalischen Classe der Königlich Bayerischen Akademie der Wissenschaften. Vierten Bandes Zweite Abtheilung. In der reihe der denkschriften der xix. band. München, 1845. 4to.—*From the Academy of Sciences of Munich.*

Bulletin der Königl. Academie der Wissenschaften. 17th September to 8th November, 1844. Nos. 51 to 57, inclusive. 1st January to 2d December, 1845. Nos. 1 to 52, inclusive. 1st to 7th January, 1846. Nos. 1 to 5. 4to.—*From the same.*

Andeutungen zur Charakteristik des Organischen Lebens nach seinem Austreten in den verschiedenen Erdperioden. 4to.—*From the same.*

Almanack der Königlichen Bayerischen Akademie der Wissenschaften für das Jahr, 1845. 12mo.—*From the same.*

The Thirteenth Annual Report of the Royal Cornwall Polytechnic Society, 1845. Falmouth. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. I. May, 1841. No. 2. Vol. II. March and April, 1845. No. 8. Vol. III. May and June, 1846. No. 3. 8vo.—*From the Academy.*

The American Journal of Science and Arts. Second Series. No. 4. July, 1846. Vol. II. 8vo.—*From the Editors.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. New Series. Vol. XII. No. 23. July, 1846. 8vo.—*From the Editor.*

The Medical News and Library. Vol. IV. July, 1846. No. 43. 8vo.—*From Messrs. Lea & Blanchard.*

The African Repository and Colonial Journal. Vol. XXII. July, 1846. No. 7. 8vo.—*From the American Colonization Society.*

Twenty-sixth Congress, 1st Session, House of Representatives, Doc. No. 239. Mineral Lands of the United States. D. D. Owen's Survey of the Mineral Lands in Iowa, Wisconsin, and Northern Illinois. 8vo.—*From the Hon. J. R. Ingersoll.*

Twenty-ninth Congress, 1st Session, Senate. No. 405. Report on the Joint Committee on the Library. 8vo.—*From Mr. T. R. Peale.*

Some Observations on the Ethnography and Archæology of the American Aborigines. By Samuel George Morton, M.D. 8vo.—*From the Author.*

Elementare Darstellung der Analyse der Fixstern-Bedeckungen des Herrn Geheimen Rath Bessel. Von C. Rümker. Hamburg, 1846. 4to.—*From the Author.*

Primary Address to the Convention of the Protestant Episcopal Church in the Diocese of Pennsylvania. Delivered May 20, 1846. By Alonzo Potter, D.D., Bishop of said Diocese. 8vo.—*From the Author.*

Pastoral Letter addressed to the Clergy and Laity of the Protestant Episcopal Church of the Diocese of Pennsylvania. By Alonzo Potter, D.D., Bishop of said Diocese.—*From the same.*

Addresses at the Inauguration of the Hon. Edward Everett, LL.D., as President of the University of Cambridge, Thursday, April 30th, 1846. 8vo.—*From President Everett.*

Critical and Miscellaneous Essays. To which are added a few Poems. By Alexander H. Everett. Boston, 1845. 8vo.—*From the Author.*

Mr. Webster's Vindication of the Treaty of Washington of 1842; in a Speech delivered in the Senate of the United States, on the 6th and 7th of April, 1846. 8vo.—*From the Author.*

Reports of the Joint Special Committee appointed by the Select and Common Councils of Philadelphia, to consider the Petitions and Communications relative to the Pennsylvania Rail-road Company, July 2d, 1846. 8vo.—*From Mr. S. W. Roberts.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXII. Nos. 13 to 16, inclusive. 30th of March to 20th of April, 1846. 4to. Tables des Comptes Rendus, Deuxième Semestre, 1845. Tome XXI.

Annales de Chimie et de Physique. Troisième Série. Mai, 1846. Tome XVII. 8vo.

Niles' National Register, containing Political, Historical, Geographical, Scientifical, Statistical, Economical, and Biographical Documents, &c. From March to September, 1845. Vol. 68. From September, 1845, to March, 1846. Vol. 69. Folio.

Dr. Patterson, from the Committee to whom was referred the paper of Captain Stockton, U. S. N., read at the last meeting, and relating to experiments in gunnery made by that gentleman, reported in favour of its publication in the Transactions of the Society. It was so ordered, and the Committee discharged.

The obituary notice of Mons. Nicollet, prepared by Colonel Abert, was read by the Secretary. On motion of Dr. Patterson, it was directed to be deposited among the archives of the Society.

A letter addressed to the President of the Society, by Mr. Chauncey, dated June 26, 1846, and referring to a communication, entitled "On a Parallatic Eye-piece," forwarded to the Society by a candidate for the Magellanic Premium, was read. Dr. Patterson stated that the paper had been examined, and that one of the Secretaries had communicated indirectly with the author.

The attention of the Society was drawn by Dr. Bache to a paper, in the Philosophical Magazine, by Messrs. Binney and Harkness, on three fossil trees, termed, by geologists, sigilla-

riæ. From the state of preservation in which these were found, these gentlemen were enabled to determine that the fossil plant, known as stigmaria, was the root of a sigillaria. Observations of a similar character, anticipating this discovery of Messrs. Binney and Harkness, were made some time since by Mr. Steinhauer, a member of the Society, and published in its Transactions.

Dr. Emerson remarked on the course and character of the late meteor: one of the most singular of its phenomena was its apparent proximity to the place from whence it was observed. Its movement was gradual from south to north, but, without approaching the horizon, it suddenly disappeared. Dr. Patterson stated these were the usual phenomena wherever it had been observed, but that its real distance was far greater than that at which it appeared to the eye.

New nominations, Nos. 190, 191, were read.

The Librarian reported, that in accordance with the request of the Chairman of the Curators, he had delivered to Henry M'Ilvaine, Esq., attorney of Joseph E. Bloomfield, the two silver Peruvian vases and the silver cestus, which were deposited in the Cabinet of the Society, by Mr. Bloomfield, on the 16th of July, 1820.

It was moved by Judge Kane, that so much of the By-laws as relates to the nomination of members, be referred to a Committee, to report such alterations as they may deem expedient. The motion being agreed to by the Society, Judge Kane, Dr. Ludlow, and Dr. Bethune, were appointed the Committee.

Mr. Ord offered the following preamble and resolution, which were adopted:—

Whereas the eighth meeting of the Italian Association for the Advancement of Science, will be held in the City of Genoa on the 14th September next, and it is expedient that the American Philosophical Society be represented in that learned body, it is hereby—

Resolved, That our fellow member, Charles Lucien Bonaparte, Prince of Canino and Musignano, now residing at Rome, be invited to act as our representative at the meeting of the Association aforesaid, and that he be requested to aid in advancing all those objects wherein the Italian Association and this Society have a mutual interest.

The Treasurer made a statement as to the present condition of the debt due to the estate of Mr. Dunn.

Stated Meeting, August 21.

Present, seventeen members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the Royal Institute of Sciences, Belles Lettres, and Arts, of the Low Countries, dated March 30th, 1846, announcing a donation to the Library of the Society:—

From the Lyceum of Natural History, dated New York, August 3d, 1846, acknowledging the reception of Vol. IX. Part 2, of the Transactions of the Society:—

From the American Academy of Arts and Sciences, Boston, dated August 6th, 1846, stating that a copy of the Memoirs of the Academy, Vol. II., New Series, had that day been forwarded to the American Philosophical Society. (This volume had not been received, and a notice to that effect was forwarded by one of the Secretaries.)—

From Professor John Muller, of Berlin, dated May 20th, 1846, acknowledging his election as a member of this Society: and,—

From the Central Commission of Statistics of Belgium, dated Brussels, March 15, 1846, with a donation to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, ou Figures et Descriptions de Plantes Belgiques. Par Jan Kops et J. E. van der Trappen. Nos. 133, 138, 139, 140, 141. 4to.—*From H. M. the King of the Netherlands.*

Nieuwe Verhandelingen der Eerste Klasse van het Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoone Kunsten et Amsterdam. Twaalfden Deels Tweede Stuk. Amsterdam, 1846. 4to.—*From the Royal Institute of the Netherlands.*

Nadere Waarnemingen en Proeven over de Onlangs Geheerscht Hebbende Ziekte der Aardappelen, door G. Vrolik. Amsterdam, 1846. 8vo.—*From the same.*

The Quarterly Journal of the Geological Society of London. Edited by the Vice Secretary. No. 6. May, 1846. 8vo.—*From the Society.*

Report of the Fifteenth Meeting of the British Association for the Advancement of Science; held at Cambridge in June, 1845. London, 1846. 8vo.—*From the Association.*

Journal Asiatique. Quatrième Série. Tome VII. No. 32. Mars, 1846. 8vo.—*From the Society.*

Annales des Mines. Quatrième Série. Tome VIII. 5e et 6e Livraisons de 1845. 8vo.—*From the Engineers of Mines.*

Statistique de la Belgique. Population. Mouvement de l'Etat civil pendant l'année 1844. Publié par le Ministre de l'Intérieur. Bruxelles, Novembre, 1845. Folio.—*From the Central Commission of Statistics.*

Royaume de Belgique. Ministère de l'Intérieur. Bulletin de la Commission Centrale de Statistique. Deuxième partie du Tome II. Bruxelles, 1845. 4to.—*From the same.*

Rapport au Ministre de l'Intérieur sur les Travaux de la Commission Centrale et des Commissions Provinciales de Statistique. Bruxelles, le 4 Février, 1846. 8vo.—*From the same.*

Proceedings of the Boston Society of Natural History. July, 1846. 8vo.—*From the Society.*

Proceedings of the Historical Society of Pennsylvania. Vol. I. June, 1846. No. 6. 8vo.—*From the Society.*

The African Repository and Colonial Journal. Vol. XXII. August, 1846. No. 8. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. XII. July and August, 1846. Nos. 1 and 2.—*From Dr. Patterson.*

The Medical News and Library. Vol. IV. August, 1846. No. 44. 8vo.—*From Messrs. Lea & Blanchard.*

Bibliographie Historique de la Statistique en Allemagne, avec une Introduction Générale. Par Xavier Heuschling. Manuel préparatoire à l'etude de la Statistique. Bruxelles, 1845. 8vo.—*From the Author.*

Opinion of Horace Binney, Esq., upon the Right of the City Councils to subscribe for Stock in the Pennsylvania Rail-road Company. July, 1846. 8vo.—*From George W. Smith, Esq.*

Map of the Harbour of Annapolis. Founded upon a Trigonometrical Survey, under the Direction of A. D. Bache, Superintendent of the Survey of the Coast of the United States, &c. &c. &c.—*From the Treasury Department.*

Map of the Harbour of New Bedford. Founded upon a Trigonometrical Survey, under the Direction of A. D. Bache, Superintendent of the Survey of the Coast of the United States, &c. &c. &c.—*From the same.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Troisième Série. Juin, 1846. Tome XVII. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secrétaires Perpétuels. Tome XXII. Nos. 17 à 21. 27 Avril au 25 Mai, 1846. 4to.

Astronomische Nachrichten. Nos. 557, 558, 559. Title and Index to Vol. XXIII. 4to.

Mr. Ord announced the death of Mr. Samuel Humphreys, U. S. Naval Constructor, and a member of this Society. He died at Washington, D. C., on the 16th inst., at the age of 68. On motion of Mr. Ord, Mr. Lenthall was requested to prepare an obituary notice of the deceased.

Mr. Justice alluded to the manufacture of large disks of glass for optical purposes, by Mons. Bouthoware, of Paris, and remarked that he had seen one free from all imperfection. Glass for optical uses is now ground at New York, by Mr. Fitch.

Dr. Patterson inquired whether a companion star to Antares had been observed at the High School Observatory; and remarked that Prof. Mitchell, of Cincinnati, had discovered such a star, whose existence had not before been suspected. The same had been also observed by Lieut. Maury and Mr. Walker, at Washington; and while making the observation, Lieut. Maury had observed a second star: but from a communication from Mr. Walker, it seemed probable that this might be an optical illusion. Mr. Justice stated that large glasses were often the source of deception.

In continuing this conversation, Dr. Bache observed that Prof. Airy had found great difficulty in procuring glass for the

new observatory at Liverpool, adapted for astronomical purposes, and that he had been obliged to obtain it from Munich.

The British government had made, some years ago, large appropriations for the instituting experiments on glass intended for astronomical observations, but they had failed, though conducted by some of the most distinguished men of science.

The Treasurer informed the Society, that the debt due to the estate of Mr. Dunn, had been wholly liquidated.

Stated Meeting, September 18.

Present, twenty-two members.

Dr. FRANKLIN BACHE, Vice-President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Royal Society of London. June 17, 1841. No. 49. 8vo.—*From the Royal Society.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. May 8, 1846. No. 7. 8vo.—*From the Society.*

Memoirs of the American Academy of Arts and Sciences. New Series. Vol. II. Cambridge, 1846. 4to.—*From the Academy.*

Proceedings of the Boston Society of Natural History. January, February, March, December, 1845. 8vo.—*From the Society.*

Summary of the Transactions of the College of Physicians of Philadelphia. From April to August, 1846, inclusive. No. 12. 8vo. *From the College.*

The African Repository and Colonial Journal. Vol. XXII. September, 1846. No. 9. 8vo.—*From the American Colonization Society.*

The Electrical Magazine. Conducted by Mr. Charles V. Walker. Vol. II. No. 13. July, 1846. 8vo.—*From the Editor.*

Astronomical Observations made at the Naval Observatory, Washington, under Orders of the Honourable Secretary of the Navy, dated Aug. 13, 1838. By Lieut. J. M. Gilliss, U. S. N. Printed by order of the Senate of the United States. Washington, 1846. 8vo.—*From the Author.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLII. No. 249. Third Series. Vol. XII. September, 1846. No. 3. 8vo.—*From Dr. Patterson.*

The American Journal of Science and Arts. Second Series. No. 5. September, 1846. 8vo.—*From the Editors.*

An Account of the Magnetic Observations made at the Observatory of Harvard University, Cambridge. Communicated by Joseph Lovering. 4to.—*From Prof. Lovering.*

The Medical News and Library. Vol. IV. September, 1846. No. 45. 8vo.—*From Messrs. Lea & Blanchard.*

Correspondencia con los Ministros de Inglaterra, y de Francia sobre los asuntos de la Pacificacion, presentada a la H. Sala de Representantes por el Gobierno de Buenos-Aires, encargado de las Relaciones Exteriores de la Confederacion Argentina. Buenos-Aires, 1846. 4to.—*From Don Pedro de Angelis.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

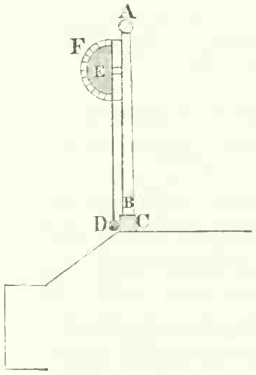
Scientific Memoirs, selected from the Transactions of Foreign Academies of Science and Learned Societies, and from Foreign Journals. Edited by Richard Taylor, F.S.A. &c. Vol. IV. Part XV. June, 1846. 8vo.

Astronomische Nachrichten. Nos. 560 to 563, inclusive. Altona, May 30 to June 25. 4to.

Mr. Peale read the following letter from Dr. Franklin to Dr. Kimmersley, dated London, July 17, 1771.

Dear Sir,—I was much obliged by your account of the effect of the lightning on Mr. Holder's house. It will be in the Transactions here. I wonder it is not to be found in yours. Those here, who aimed at obtaining a very great electric force, have been much discouraged by the breaking of the bottles that composed their batteries. A gentleman of my acquaintance lost eight out of twenty at one stroke; another twelve out of forty. Having heard that Père Beccaria had lined the inside of a great iron kettle with cement, and then coated a part of the cement with tinfoil, from whence he could discharge a great stroke; and if any crack happened to his cement, he mended it again with a hot iron; I recommended trying to make batteries of paper, by straining the sheets on frames, drying them hot before the fire; then impregnating them with melted wax, and afterwards coating them with tinfoil. This another ingenious friend has

tried, and, as he writes me, it succeeds. The same (Mr. Henley) has invented an electrometer, which seems useful. I send you a draft of it. It shows in what degree a bottle is charged; that is, whether half, three-quarters, &c.: so that knowing the force of a full charge of any bottle or battery, you may by this, while charging, know the proportion you have of such force. Your experiment, showing that a stroke with black lead on paper would conduct a shock, was new to me. I mentioned it to some, who since tell me that they also find the solid black lead in a pencil conducts as well as wire; which, indeed (the other being true), is not to be wondered at. It is, however, the only property of metal black lead possesses, as far as we yet know it. Mr. Canton melts silver and gold wire by electricity, not only into fine white little globules, but also into spherules of glass, some of which he has shown me by his microscope. They were transparent, the light passing through them, and appearing in a focus on the paper. Mr. Henley has several times melted iron wire lying at the bottom of a white stone plate filled with water. The iron was destroyed, and marked the plate with an indelible black stroke. Sparks flew from it out through the water, and fell red-hot



A B, an ivory rod, round, with a knob at the top, six inches high.

C, a short tin socket, fixed to the prime conductor, to receive the end of the iron rod.

D, a cork or pith ball, at the end of a small ivory arm, turning on an axis at E.

F, a semicircular plane of ivory, graduated at the edge, to mark the rise of the ball by the small arm passing over the graduations.

on the table. I wish I had any thing of more importance to communicate. Business during the winter takes up my time, so that I make no experiments myself; but what I hear of I shall continue to send you.

Being with sincere esteem, dear sir,
Your most obedient humble servant,
B. FRANKLIN.

Dr. Patterson gave a general account of the mathematical inquiries recently conducted by Mons. Le Verrier, to explain the apparent diversity between the actual observed position of the planet Uranus, and the position it should occupy according to the laws of gravitation. Assuming that another planet exists beyond Uranus, at the distance from the Sun which the laws of Bode would indicate; that its orbit was nearly circular, and in the zodiac; and that its mass was equal to that of Uranus; he determined that a planet so assumed would account for the perturbations observed in regard to Uranus, from the position it should occupy, according to the laws of gravitation, if the planet was in a particular place at a given epoch.

Stated Meeting, October 2.

Present, eighteen members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were announced and read:—

From the Royal Geographical Society of London, dated Feb. 21, 1846, acknowledging the reception of Vol. IX. Part 2d, of the Transactions of the American Philosophical Society, and of Nos. 32, 33, of the Proceedings:—

From the New Jersey Historical Society, dated Newark, Sept. 7, 1846, stating that they had sent their publications to the American Philosophical Society, and asking, in return, donations to their Library:—

From P. de Angelis, dated Buenos Ayres, Feb. 20, 1846, accompanying a donation to this Society of official documents: and,—

From Dr. Asa Gray, dated Cambridge, Mass., Aug. 26, and Sept. 4th, 1846, in relation to a donation sent by him to the American Philosophical Society.

On motion of Judge Kane, the New Jersey Historical Society was placed among those societies that are in correspondence with the American Philosophical Society.

The following donations were announced:—

FOR THE LIBRARY.

The Journal of the Royal Geographical Society of London. Vol. XVI. 1846. Part I. 8vo.—*From the Society.*

The Royal Geographical Society and its Labours. 1846. 8vo.—*From the same.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. June 12, 1846. No. 8. 8vo.—*From the Society.*

The Quarterly Journal of the Geological Society of London. Edited by the Vice Secretary of the Geological Society. Aug. 1, 1846. No. 7. 8vo.—*From the Geological Society.*

Bulletin de la Société de Géographie. Troisième Série. Tome V. Paris, 1846. 8vo.—*From the Society.*

Journal Asiatique. Quatrième Série. Tome VII. Avril, Mai, 1846. Nos. 33, 34. 8vo.—*From the Asiatic Society of Paris.*

Annals of the Lyceum of Natural History of New York. Vol. IV. August, 1846. Nos. 6, 7. 8vo.—*From the Lyceum.*

Collections of the New Jersey Historical Society. Vol. I. 1846. 8vo.—*From the New Jersey Historical Society.*

Constitution, By-laws, and Circular, of the New Jersey Historical Society. 8vo.—*From the same.*

Proceedings of the New Jersey Historical Society. Vol. I. 1845. No. 1. 8vo.—*From the same.*

The First Annual Address before the New Jersey Historical Society, at their Meeting in Trenton, on Monday, January 15, 1846. By the Right Rev. G. W. Doane, D.D., LL.D., Bishop of New Jersey. Burlington, 1846. 8vo.—*From the same.*

Abstract of the Proceedings of the Sixth Annual Meeting of the Association of American Geologists and Naturalists, held in New Haven, Conn., April, 1845. New Haven, 1845. 8vo.—*From the Association.*

The Medical News and Library. Vol. IV. October, 1846. No. 46. 8vo.—*From Messrs. Lea & Blanchard.*

De Nieuwe en Onbekende Weereld: of Beschryving van America en 't Zuid-Land, vervaetende d'Oorsprong der Americaenen en Zuidlanders, gedenkwaerdige togten derwaerds, Gelegendheid der vaste Kusten, Eilanden, Steden, Sterkten, Dorpen, Tempels, &c. &c. Door Arnoldus Montanus. Amsterdam, 1671. Folio.—*From John J. Vanderkemp, Esq.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

The Edinburgh New Philosophical Journal. Conducted by Professor Jameson. Nos. 76 to 81, inclusive. April, 1845, to July, 1846. 8vo.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Conducted by Sir David Brewster and others. Third Series. Nos. 172 to 192, inclusive. March, 1845, to August, 1846. 8vo.

Astronomische Nachrichten. Nos. 564 to 570, inclusive. 4to.

Annales de Chimie et de Physique. Par MM. Gay-Lussac, Arago, Chevreul et Autres. Troisième Série. Tome XVII. Juillet, Août, 1846. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXII. Nos. 22 to 26. Tome XXIII. Nos. 1 to 3. June 1st to 20th July, 1846. 4to.

Dr. Patterson read the following letter addressed to him by the late Dr. Rose.

Silver Lake, May 19, 1823.

Dear Sir,—Shortly after my return home (April 12th), I had the temperature of the water in this lake, and another which is about four miles from it, ascertained. A bottle of water was sunk to the bottom in this lake, 90 feet; in the other, 75 feet; and after lying twenty-four hours, drawn up, and the water contained in it was found to be, in both instances, 42° of Fahr. In midsummer, last year, I tried the temperature of the water here in the manner mentioned above, and found it, at an hundred feet deep, to be 46°.

Very respectfully,

R. H. ROSE.

Prof. Frazer alluded to the experiments made in the Gulf Stream by the late Lieut. George Bache, of the U. S. Coast Survey. The temperature of the surface was 80° Fahr.; but at the depth of 1500 fathoms it reached as low as 37°.

Nominations No. 190 and 191 were read.

Mr. Nulty asked permission to withdraw a communication, now in the hands of the Publication Committee, in order that he might offer a substitute.

Stated Meeting, October 16.

Present, twenty-nine members.

Dr. CHAPMAN, President, in the Chair.

A letter was announced and read:—

On behalf of the Nantucket Athenæum, dated Nantucket, October 12th, 1846, asking the Society to aid in the re-establishment of their library, destroyed by fire on the 13th and 14th ultimo, and "to spare a portion of their duplicate volumes and such other works as they may feel quite free to bestow."

The following donations were announced:—

FOR THE LIBRARY.

The African Repository and Colonial Journal. Vol. XXII. October, 1846. No. 10. 8vo.—*From the American Colonization Society.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XXIV. New Series. October, 1846. 8vo.—*From the Editor.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLII. No. 250. Third Series. Vol. XII. No. 4. 8vo.—*From Dr. R. M. Patterson.*

A Dictionary of Medical Science, containing a Concise Account of the various Subjects and Terms; with the French and other Synonymes, &c. By Robley Dunglison, M.D. Sixth Edition. Revised and greatly enlarged. Philadelphia, 1846. 8vo.—*From the Author.*

New Remedies. By Robley Dunglison, M.D. Fifth Edition, with extensive Additions. Philadelphia, 1846. 8vo.—*From the same.*

Human Physiology. With three hundred and sixty-eight Illustrations. By Robley Dunglison, M.D. Sixth Edition, greatly improved. In Two Volumes. Philadelphia, 1846. 8vo.—*From the same.*

General Therapeutics and Materia Medica. With one hundred and twenty Illustrations. Adapted for a Medical Text Book. By Robley Dunglison, M.D. Third Edition, revised and improved. In Two Volumes. Philadelphia, 1846. 8vo.—*From the same.*

Prof. Henry laid before the Society the results of some investigations that he had lately made in physical science, and a theory of the causes of the phenomena observed. The well known phenomenon of a ball resting on a jet of water, he ascribed to the action of three different causes—1st. To the adhesion of the water to the ball. 2d. To the adhesion of the water to itself. 3d. To the tendency of water to move in a straight line, and also to the principle of action and reaction. He had also made experiments in regard to the interference of heat, for the purpose of discovering whether certain phenomena of interference of light were exhibited as well in the case of caloric. He found it to be so, and that two rays of heat may be thrown on each other, so as to produce a reduction of temperature.

The Society then proceeded to an election of members.

Dr. Patterson, from the Committee of Finance, reported the liquidation of the debt of the Society to the estate of the late Nathan Dunn.

All other business of the evening having been concluded, the ballot boxes were opened, and the following gentlemen declared to be elected members of the Society:—

Richard L. M'Culloch, of Philadelphia.

Ceva Grimaldi, Marquis of Pietracatella, of Naples.

Stated Meeting, November 6.

Present, twenty-nine members.

Dr. Chapman, President, in the Chair.

Mr. R. L. M'Culloch, a newly elected member, was introduced, and took his seat.

Letters were received and read:—

From the Royal Society of Sciences of Copenhagen, dated

March 20th, 1846, announcing their reception of the Transactions and Proceedings of the Society; and also another from the same body, stating that they had forwarded donations to the Library of the American Philosophical Society:—

From the Literary and Philosophical Society of Manchester, dated April 27th, 1846, acknowledging the receipt of the Transactions and Proceedings of this Society: and,—

From Dr. S. G. Morton, dated Philadelphia, October 26th, 1846, proposing to exchange books for the Mexican skull in the possession of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Det Kongelige Danske Videnskabernes Selskabs Naturvidens kabelige og Mathematiske Afhandlinger. Ellevete Deel. Med 16 Kobbertavler og et Kort. Copenhagen, 1845. 4to.—*From the Royal Society of Copenhagen.*

Collectanea Meteorologica sub auspiciis Societatis Scientiarum Danicæ edita. Fase III. Continens Observationes in Guinea Institutas. Hauniæ, 1845. 4to.—*From the same.*

Oversigt over det Kgl. Danske Videnskabernes Selskabs Forhandlinger og dets Medlemmers Arbeider i Aaret, 1844 og 1845. Copenhagen, 1845, 1846. 8vo.—*From the same.*

Naturlehre des Schönen von H. C. Orsted. Ausdem Dänischen von H. Beise. Hamburg, 1845. 8vo.—*From the Author.*

Expedition Shells: described for the Work of the United States Exploring Expedition, commanded by Charles Wilkes, U. S. N., during the Years 1838—1842. By Augustus A. Gould, M.D. Boston, 1846. 8vo.—*From Capt. Wilkes.*

Oration delivered before the Agricultural and Mechanics' Association of Louisiana, on the 12th of May, 1845, by Judge P. A. Rost. Philadelphia, 1845. 8vo.—*From the Hon. Jos. R. Ingersoll.*

On the Volcanoes of the Moon. By James D. Dana. Read before the Association of American Geologists and Naturalists, September, 1846. Extracted from the American Journal of Science, Vol. II. Second Series. 8vo.—*From the Author.*

Dr. Patterson informed the Society, that the planet lately discovered by Le Verrier, had been observed by Gallé, of Berlin, on the 23d September, 1846; on the 23d October, at

Washington, D. C.; and on the 24th, at the High School Observatory of this city.

The reference to a paper presented at the preceding meeting of the Society, led Professor Henry to make some remarks on the corpuscular hypothesis of the constitution of matter.

He stated that this subject has occupied attention at every period of the history of science; and though, at first sight, speculations of this kind might appear to belong exclusively to the province of the imagination, yet, in reality, he considered this hypothesis a fruitful source of valuable additions to our knowledge of the actual phenomena of the physical world. Though simple insulated facts may occasionally be stumbled upon by a lucky accident, the discovery of a series of facts, or of a general scientific principle, is, in almost all cases, the result of deductions from a rational antecedent hypothesis, the product of the imagination; founded, it is true, on a clear analogy with modes of physical action, the truth of which have been established by previous investigation.

In constructing an hypothesis of the constitution of matter, the simplest assumption, and indeed the only one founded on a proper physical analogy, is, that the same laws of force and motion which govern the phenomena of the action of matter in masses, pertains to the minutest atoms of these masses.

It is a well established fact, that portions of matter at a distance tend to approach each other, and when they are brought very near, to separate, and still nearer again, to approach; and so on through several alternations. In the present state of science, we consider these actions as ultimate facts, to which we give the name of attracting and repelling forces; and without attempting to go behind them, we may study their laws of variation as to intensity and direction under different circumstances, and particularly in reference to a change of distance. Bodies or masses of matter are also subjected to fixed laws of motion, which have been classed under three heads, namely, the law of inertia, or tendency to resist a change of state, and to move in a straight line with a constant velocity; the law of the coexistence of separate motions; and the law of the equality of action and reaction.

The explanation of a mechanical phenomenon consists in its analysis, and the reference of its several parts to the foregoing laws of force and motion; and as no phenomenon, whether it relates to masses or the minutest portions of matter, is fully explained until it

can be referred to one or more of these laws, it follows that any corpuscular hypothesis which does not ascribe to each atom of matter the property of obedience to the same laws, must be defective. It was for this reason, said Professor H., that in printing a syllabus of my lectures, about two years ago, I was induced to make some additions to the assumptions on which the corpuscular hypothesis of Boscovich is founded. According to this celebrated hypothesis, a portion of matter consists of an assemblage in space of an indefinite number of points kept at a given distance by attracting and repelling forces. These points have relative position, but not magnitude, and are merely centres of action of the forces which affect our senses; and since all our knowledge of matter is derived from the action of these forces, to infer that these points are any thing more than the centres of forces, is going beyond our premises.

This hypothesis readily explains the statical properties of bodies, such as elasticity, porosity, impenetrability, solidity, liquidity, crystallization, resistance to compression when a force is applied to either side of a body, &c.; but it fails to account for the dynamic phenomena of masses of matter, or those which are referrible to the three laws of motion. It is not, therefore, enough, that we assume, as the elements of matter, an assemblage of points in space, from which merely emanate attracting and repelling forces; we must also suppose these points to be endowed with inertia, or a tendency to resist a change of state, whether of rest or motion, and a tendency to move in a straight line; also to possess the property of preserving the effects of a number of impulses, as well as that of transferring motion from one point to another, the one losing as much motion as the other gains. But the admission of the existence of points with such qualities, brings us back to the Newtonian hypothesis of matter.

According to the view we have given, a portion of matter consists of an assemblage of indivisible and indestructible atoms endowed with attracting and repelling forces, and with the property of obedience to the three laws of motion. All the other properties, and indeed all the mechanical phenomena of matter, so far as they have been analyzed, are probably referrible to the action of such atoms, arranged in groups of different orders, namely, of ultimate atoms, chemical atoms, simple molecules, compound molecules, particles, &c.; the distance in all cases, between any two atoms, being much greater than the diameter of the atoms or molecules.

In order that we may bring the phenomena of the imponderable agents of nature, as they are called, under the category of the laws

of force and motion, we are obliged to assume the existence of an ethereal medium formed of atoms, which are endowed with precisely the same properties as those we have assigned to common matter; and this assumption leads us to the inference, that matter is diffused through all space.

That something exists between us and the sun, possessing the properties of matter, may be inferred from the simple fact, that time is required for the transmission of light and heat through the intervening space. The phenomena of the transmitted motion, in these cases, are perfectly represented by undulations, in a medium composed of very minute atoms of ordinary matter, endowed with all the mechanical properties we have mentioned. Indeed, the motion is analogous, though not precisely similar to the transmission of sound through air; the time, however, in the two cases, being very different. Light passes the space between us and the sun in about eight minutes, while sound, through air, would require 13⅝ years to perform the same journey. This difference in velocity is, however, readily explained by a difference in density and elasticity of air, and the ethereal medium. That the phenomena of light and heat from the sun are not the effect of transmission, without intervening matter, of mere force, such as that of attraction or repulsion, is evident from the fact, that these actions require no perceptible time for their transmission to the most distant part of the solar system. If the sun were at once to be annihilated, the planet Neptune would, at the same instant, begin to move in a tangent to its present orbit. Also, the phenomena of electricity and magnetism involve the consideration of time; the discharge of the former through a copper wire is transmitted with about the velocity of light, and the development of the latter, in an iron bar, is attended with a change in the ponderable molecules of the metal, which requires time for its completion.

According to the foregoing views we may assume, with Newton, the existence of one kind of matter diffused throughout all space, and existing in four states, namely, the ethereal, the aëriform, the liquid, and the solid. This method of presenting the atomic hypothesis of the constitution of matter, may at first sight appear startling; but on a little reflection, it will be found a necessary consequence of the attempt to explain the mechanical phenomena of matter by an assemblage of separate atoms. It may be objected to the assumption of one kind of matter, that the fact of the imponderable nature of light, heat, electricity and magnetism, require at least two kinds of matter; but if we adopt the theory of undulation, the phenomena of

the imponderables, as they are called, are merely the results of the motions of the atoms of the ethereal medium, combined, in some cases, with the motion of the atoms of the body; and since the vibrations of the atoms of a mass of matter do not increase the attraction of the earth on the mass, an increase of temperature in a body cannot change its weight; and also because the ethereal medium fills all space, a portion of this medium can no more exhibit weight, than a quantity of air when weighed in the midst of the atmosphere.

The points here noticed, relate merely to the fundamental conceptions of the corpuscular or atomic constitution of matter, and not to the arrangement of the atoms into systems of groups, which are necessary to represent the varied and complicated mechanical and chemical phenomena exhibited in the physical changes going on around us. Though he could not, at this time, attempt to give any details of the application of this hypothesis, he drew attention to one class of facts, of which it is important to furnish an expression in the arrangement of the atoms. He alluded to the facts of polarity, or those which exhibit the action of opposite forces at the extremities of molecules or of masses. The north and south poles of two magnets, brought together, neutralize each other; the attraction of one is balanced by the repulsion of the other, and the point of junction is without action on a third ferruginous body. In the same manner, apparently, two chemical elements which enter into combination exhibit a neutralizing effect, which indicates the existence of polar forces in the phenomena of chemical action. Nothing, however, is perceptible of this kind in the effects of gravitation; the action of two particles on each other does not interfere with the action, at the same time, of these two, on any number of other particles.

In conclusion, it should be remembered that the legitimate use of speculations of this kind is not to furnish plausible explanations of known phenomena, or to present old knowledge in a new and more imposing dress, but to serve the purpose of suggesting new experiments and new phenomena, and thus to assist in enlarging the bounds of science, and extending the power of mind over matter; and unless the hypothesis can be employed in this way, however much ingenuity may have been expended in its construction, it can only be considered as a scientific romance worse than useless, since it tends to satisfy the mind with the semblance of truth, and thus to render truth itself less an object of desire.

Stated Meeting, November 20.

Present, twenty-three members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the Royal Lombardy Institute of Science, Letters and Arts, dated Milan, June, 1846, informing the Society that they had forwarded donations of books, and asking, in exchange, its publications:—

From N. P. Rolando, dated London, October 8th, 1846, accompanying the communication from the Lombardy Institute, and offering his services in transmitting donations:—

From the Royal Academy of Sciences of Berlin, dated Berlin, August 1st, 1846, acknowledging the reception of the Transactions of this Society, Vol. IX., Parts 1 and 2, and Proceedings, Nos. 28 to 34; the Transactions of the Historical and Literary Committee, Vol. III., Part 1; and Dunglison's Discourse on Du Ponceau:—

From the same, dated Berlin, August 1st, 1846, transmitting a donation to the Society:—

From the Regents of the University of New York, dated Albany, Nov. 11, 1846, acknowledging their having received No. 35, Vol. IV., of the Proceedings of this Society: and,—

From Maximilian, Prince of Wied, dated New Wied, on the Rhine, March 26, 1845, acknowledging the notice of his election as a member of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1844. Berlin, 1846. 4to.—*From the Royal Academy of Berlin.*

Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin. Juli, August, September, October, November, December, 1845. Januar, Februar, März, April, Mai, Juni, 1846. 8vo.—*From the same.*

Nouveaux Mémoires de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Tomes XVII. et XVIII. 1844, 1845. 4to.—*From the Royal Academy of Brussels.*

Mémoires Couronnés et Mémoires des Savants Étrangers, publiés par l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Tomes XVII. et XVIII. 1843-1844, 1844-1845. 4to.—*From the same.*

Bulletins de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Tome XI. Nos. 9 à 12. 1844. Tome XII. Nos. 1 a 6. 1845. 8vo.—*From the same.*

Annuaire de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Onzième Année, 1845. 12mo.—*From the same.*

Transactions of the Royal Society of Edinburgh. Vol. XVI. Part II. Edinburgh, 1846. 4to.—*From the Society.*

Proceedings of the Royal Society of Edinburgh. Vol. II. Nos. 27 and 28. 1845-6. 8vo.—*From the same.*

Archæologia: or Miscellaneous Tracts relating to Antiquity. Published by the Society of Antiquaries of London. Volume XXXI. London, 1846. 4to.—*From the Society.*

Proceedings of the Zoological Society of London. Part XIII. 1845. 8vo.—*From the Society.*

Reports of the Council and Auditors of the Zoological Society of London, read at the Annual General Meeting, April 29, 1846. 8vo.—*From the same.*

The Transactions of the Linnean Society of London. Vol. XX. Part the First. London, 1846. 4to.—*From the Linnean Society.*

List of the Linnean Society of London. 1846. 4to.—*From the same.*

Proceedings of the Linnean Society of London, Nos. 27, 28, 29. 8vo.—*From the same.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland. No. XVII. Part I. Vol. IX. Part I. London, 1846. 8vo.—*From the Royal Asiatic Society.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. X. Part I. Containing the Persian Cuneiform Inscription at Behistun, decyphered and translated; with a Memoir on Persian Cuneiform Inscriptions in general, and on that of Behistun in particular. By Major H. C. Rawlinson, C. B. London, 1846. 8vo.—*From the same.*

The African Repository and Colonial Journal. Vol. XXII. Novem-

ber, 1846. No. 11. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. IV. November, 1846. No. 47. 8vo.—*From Messrs. Lea & Blanchard.*

The American Journal of Science and Arts. Conducted by Professor Silliman and B. Silliman, Jr., and James D. Dana. Second Series. November, 1846. No. 6. 8vo.—*From the Editors.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLII. No. 251. Third Series. Vol. XII. November, 1846. No. 5. 8vo.—*From Dr. R. M. Patterson.*

The Annals and Magazine of Natural History, including Zoology, Botany, and Geology.

Vol. XIII. Nos. 81 to 87, inclusive.
„ XIV. „ 88 to 94, „
„ XV. „ 95 to 101, „
„ XVI. „ 102 to 105, „
„ XVII. „ 112 to 115, „
„ XVIII. „ 116 to 120, „

8vo.—*From Sir William Jardine, Bart.*

Annales de l'Observatoire Royal de Bruxelles, publiées, aux frais de l'État, par le Directeur, A. Quetelet. Tome IV. Bruxelles, 1845. 4to.—*From the Director.*

Annuaire de l'Observatoire Royal, par le Directeur, A. Quetelet. 1845. 12e Année. 12mo.—*From the same.*

Observations des Phénomènes Périodiques. Extrait du Tome XVIII. des Mémoires de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. 4to.—*From A. Quetelet.*

Memoir on the Megatherium, and other extinct Gigantic Quadrupeds of the Coast of Georgia, with Observations on its Geologic Features. By William B. Hodgson. New York, 1846. 8vo.—*From the Author.*

Relacion de Ultimo Viage al Estrecho de Magallanes de la Fragata de S. M. Santa Maria de la Cabeza en los Años de 1785 y 1786. Extracto de todos los anteriores desde su descubrimiento impresos y MSS., y noticia de los habitantes, suelo, clima y producciones del Estrecho. Trabajada de orden del Rey. Madrid, 1788. 4to.—*From Richard C. Taylor, Esq.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

The Edinburgh New Philosophical Journal. Conducted by Professor Jameson. July to October, 1846. Vol. XLI. No. 82. 8vo.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. No. 193. September, 1846. No. 195. November, 1846. 8vo.

Astronomische Nachrichten. Nos. 571 to 574, inclusive. Nos. 577, 580, 581. 4to.

DONATION TO THE CABINET.

A case containing two Medals, one of Silver and the other of Bronze, struck in Commemoration of the First President of the Royal Academy of Sciences of Berlin, Godofr. Wilh. L. B. de Leibniz. *From the Royal Academy of Sciences of Berlin.*

Professor Frazer informed the Society of the death of Isaiah Lukens, a member of the Society, who died on the 12th of November, in his 69th year.

On motion, Mr. Trego was requested to prepare an obituary notice of the deceased.

Mr. Ord informed the Society of the death of Don Martin Fernando de Navarreto, President of the Royal Academy of History of Madrid, a member of this Society, who died at Madrid, October 8th, 1846.

Professor Frazer brought before the Society the subject of the manufacture of an explosive substance made from cotton. It is made by immersing cotton in strong nitric and sulphuric acids, and also with strong nitric acid alone. The process was detailed, and a specimen exhibited. It possesses an hygroscopic property; and when containing water is less explosive, though its strength is restored on being dried.

Pending nomination, No. 192, and new nominations, 193, 194, were read.

Dr. Dunglison, as Secretary to the Board of Officers, read the proceedings of the Board at their last meeting; and on motion of Dr. Patterson, the action of the Board in relation to a paper offered for the Magellanic Premium, entitled "A Treatise on the Parallatic Eye-piece," was approved. The opinion of the Board was to this effect—That the treatise is very learned and elaborate, and founded on a principle that is new in its application, and may lead to important results; but that the instrument itself has never been constructed, and consequently its supposed advantages have never been tested; while

the case is one which particularly requires experimental investigation, without which, indeed, no satisfactory conclusion can be drawn as to the merits or defects of the proposed apparatus. The Board, therefore, judge that the award of the Magellanic Premium to the inventor, at this time, would be premature; and they accordingly recommend that all action with regard to it be postponed until the merits of the instrument have been tested by actual trial, and that the Treatise be placed in the archives, for the disposal of the author.

Stated Meeting, December 4.

Present, twenty members.

Dr. Bache, Vice-President, in the Chair.

A letter was received and read:—

From Mr. John Plumbe, dated Philadelphia, December 4, 1846, asking permission to copy the portrait of Mr. Jefferson, belonging to the Society, for the purpose of forming one of a series of national portraits now in course of publication by him.

On motion of Dr. Dunglison, Mr. Plumbe was permitted to take a copy, under the inspection of the Librarian.

The following donations were announced:—

FOR THE LIBRARY.

Journal Asiatique, ou Recueil de Mémoires, d'Extraits et de Notices relatifs à l'Histoire, à la Philosophie, aux Langues et à la Littérature des Peuples Orientaux. Quatrième Série. Tome VII. No. 35. Juin, 1846. Tome VIII. No. 36. Juillet, 1846. 8vo.—*From the Asiatic Society of Paris.*

Mémoires de la Société Royale des Sciences, de l'Agriculture et des Arts, de Lille. Année, 1843. Lille, 1844. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. III. Nos. 4 and 5. July to October, 1846. 8vo.—*From the Academy.*

The Medical News and Library. Vol. IV. December, 1846. No. 48. 8vo.—*From Messrs. Lea & Blanchard.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Troisième Série. Tome XVIII. Septembre, Octobre, 1846. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXIII. Nos. 4 to 12. 27th July to the 21st September, 1846. 4to.

An obituary notice of Redmond Conyngham, by Bishop Potter, was read by the Secretary.

Professor Norton read a communication, entitled "A New Theory of Imponderables," which was referred to a Committee, consisting of Prof. Henry, Dr. Patterson, and Mr. M'Culloch.

The Treasurer presented his annual accounts, which were referred to the Committee of Finance.

The Committee of Publication presented their report, which was read by the Chairman.

Pending nominations, Nos. 192, 193, 194, were read.

Stated Meeting, December 18.

Present, twenty-two members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the Royal Institute of Sciences and Belles-Lettres at Amsterdam, dated September 22d, 1846, acknowledging the reception of the Transactions of the American Philosophical Society, Vol. I, Part 2, and Proceedings Nos. 33 and 34.

From Mr. John F. Watson, dated Dec. 14, 1846, asking permission to make use of certain MSS. belonging to the Society. On motion, this request was referred to the Librarian, to report thereon.

The following donations were announced:—

FOR THE LIBRARY.

Memorie dell' Imperiale Regio Istituto del Regno Lombardo-Veneto.
Volume Primo, Anni 1812 e 1813.
„ Secondo, „ 1814 e 1815.
„ Terzo, „ 1816 e 1817.
„ Quarto, „ 1833.
„ Quinto, „ 1838.
4to.—*From the Royal Lombardy Institute of Milan.*

Memorie dell' I. R. Istituto Lombardo di Scienze, Lettere ed Arti. Volume Primo, 1843. Volume Secondo, 1845. 4to.—*From the same.*

Giovnale dell' I. R. Istituto Lombardo di Scienze, Lettere ed Arti. Volumes 1 to 5. 1841 to 1845, inclusive. 8vo.—*From the same.*

Elogio di Bonaventura Cavalieri, recitato inaugurandosi au Monumento alla Memoria di lui all' Occasione del Sesto Congresso Scientifico Italiano in solenne adunanza straordinaria dell' I. R. Istituto Lombardo di Scienze, Lettere ed Arti. Da Gabrio Piola, Presidente dello Stesso I. R. Istituto, etc. Two Copies. Milano, 1844. 4to.—*From the same.*

Summary of the Transactions of the College of Physicians of Philadelphia. September to November, 1846, inclusive. Vol. II. No. 1. 8vo.—*From the College.*

The African Repository and Colonial Journal. Vol. XXII. December, 1846. No. 12. 8vo.—*From the American Colonization Society.*

Fourth Bulletin of the National Institute for the Promotion of Science. Washington, D. C. February, 1845, to November, 1846. 8vo. *From the Institute.*

A New and Complete French and English, and English and French Dictionary, on the Basis of the Royal Dictionary compiled by Professors Fleming and Tibbins, &c. &c. By Charles Picot and Judah Dobson. Third Edition. Philadelphia, 1846. 8vo.—*From J. Dobson, Esq.*

Dr. Elwyn read a paper, by Mr. Wm. M'Ilvaine, a continuation of his Memoir on a Perpetual Calendar, submitted by him to the Society, on the 15th August, 1845, which was,

on motion, referred to the same Committee who had charge of the first communication.

The present meeting being the one at which, according to the rules of the Society, applications for premiums should be considered, and the resolution of the Society, passed the 20th of Nov. 1846, on the subject of the parallatic eye-piece, being out of order, the following resolution was offered:

"*Resolved*, That the action of the Society on the Treatise on a Parallatic Eye-piece, upon the 20th of November last, be and the same is hereby confirmed."

On motion of Mr. Lea, at the request of Mr. Haldeman, this gentleman had leave to make certain amendments to his paper on Longicornia, already ordered for publication.

Dr. Patterson exhibited to the Society a bronze medal of President Polk, recently prepared at the Mint of the United States. This medal is the representation on a small scale of a much larger medallion formed in wax, as a portrait from life.

The wax medallion being covered with a metal die powder, is by the electrotype process and a subsequent transfer in sand, made to form a mould, from which a new medallion is cast in fine iron. The iron medallion is then placed under the action of a portrait lathe propelled by steam, and by the continued action of the lathe, a die is cut of the desired size, and of softened steel. The die is then slightly retouched, and being afterwards hardened, is applied in the ordinary manner of striking medals. This medal is beautifully finished, and bears a comparison with those made by the direct action of the die-sinker.

Pending nominations, Nos. 193, 194, were read, and new nomination, No. 195, was presented and read.

Dr. Meigs, on leave, made a verbal communication on the Corpus Luteum, which he had recently observed by a powerful microscope.

On motion of the Librarian, it was ordered, that a complete set of the Transactions be sent to the Royal Lombardy Institute of Science and Arts, at Milan.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JAN. FEB. & MARCH, 1847. No. 37.

Stated Meeting, January 1.

Present, fourteen members.

Dr. PATTERSON, Vice-President, in the Chair.

The judges of the annual election held this day, reported that the following officers had been chosen for the present year:—

President.

Nathaniel Chapman, M.D.

Vice-Presidents.

R. M. Patterson, M.D.
Franklin Bache, M.D.
A. Dallas Bache, LL.D.

Secretaries.

Hon. J. K. Kane,
Robley Dunglison, M.D.
A. L. Elwyn, M.D.
J. F. Frazer.

Counsellors for Three Years.

Robert Hare, M.D.
Wm. Hembel,
C. D. Meigs, M.D.
Henry Vethake.

Curators.

F. Peale,
J. P. Wetherill,
John C. Cresson.

Treasurer.

George Ord.

Letters were received and read:—

From the Royal Academy of Sciences of France, dated 19th November, 1846, acknowledging the receipt of the Society's Transactions, Vol. IX. Part 2, New Series: the Transactions of the Historical and Literary Committee of the Society, Vol. III. Part 1: the Bulletin of the Society, Vol. IV. Nos. 30, 34, &c. &c.: and,—

From the Western University of Pennsylvania, stating the destruction of their Library by fire, together with their apparatus and Cabinet, and asking aid from the Society to restore their Library.

Which letter was, on motion, referred to the Librarian.

The following donations were announced:—

FOR THE LIBRARY.

Astronomical Observations made at the Radcliffe Observatory, Oxford, in the Year 1844. By Manuel J. Johnson, M.A., Radcliffe Observer. Published by order of the Radcliffe Trustees. Vol. V. Oxford, 1846. 8vo.—*From the Radcliffe Trustees.*

Twenty-sixth Report of the Council of the Leeds Philosophical and Literary Society, at the close of the Session, 1845–46. Leeds, 1846. 8vo.—*From the Society.*

The American Journal of Science and Arts. Conducted by Prof. Silliman and B. Silliman, Jr., and J. D. Dana. Second Series. Vol. III. No. 7. January, 1847. 8vo.—*From the Editors.*

Sound and Sanctified Scholarship: An Address delivered at the Dedication of the New Edifice of the Western University of Pennsylvania, &c. By David H. Riddle, D.D. Pittsburgh, 1846. 8vo.—*From the Trustees.*

Reports of the Surveyors General, accompanying the Annual Report of the Commissioner of the General Land Office of Nov. 29, 1845. Doc. No. 12. Part 2.—*From the Hon. Jos. R. Ingersoll.*

Treaties of Peace between Great Britain, the United States of America, and France, in the English, French, and Chinese Languages. Reprinted from the Chinese Repository. 8vo.—*From Andrew P. Happer.*

A Committee, consisting of G. W. Smith, Dr. R. M. Patterson, and F. Peale, was appointed to inquire into and report

concerning the destruction at sea, by lightning, of the packet ship Thomas P. Cope, of this port.

Stated Meeting, January 15.

Present, twenty-four members.

Dr. Chapman, President, in the Chair.

Upon taking the chair, Dr. Chapman returned thanks to the members for his election to the office of President of the Society.

A letter was received and read:—

From Mr. John B. Sartori, dated Leghorn, 20th September, 1846, announcing the donation of specimens of fixed mercury, which he desired to be examined.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the American Academy of Arts and Sciences. Selected from the Records. May 26th to December 1st, 1846, inclusive.—*From the Academy.*

Boletin de la Sociedad Economica de Amigos del Pais de Valencia. Año 7. Tomo 4°. Agosto, 1846. 8vo.—*From the Society.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. 25. January, 1847. Vol. XIII. 8vo.—*From the Editor.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIII. No. 253. Third Series. Vol. XIII. January, 1847. No. 1. 8vo.—*From Dr. Patterson.*

The African Repository and Colonial Journal. Vol. XXIII. January, 1847. No. 1. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. V. January, 1847. No. 49. 8vo.—*From Messrs. Lea & Blanchard.*

Life of John Heckewelder. By the Rev. Edward Rondthaler. Edited by B. H. Coates, M.D. Philadelphia, 1847. 12mo.—*From Mr. Townsend Ward.*

Message of the President of the United States, communicating a Report of an Expedition, led by Lieut. Abert, on the Upper Arkan-

sas, and through the Country of the Camanche Indians, in the Fall of the Year 1845. Twenty-ninth Congress, First Session, Senate, Document No. 438. Two Copies.—*From Colonel J. J. Abert.*

Annual Report of the Canal Commissioners, transmitted to the Governor in pursuance of Law, for the Financial Year ending Nov. 30, 1846. Harrisburg, 1847. 8vo.—*From Charles B. Trego, Esq.*

Dr. Meigs read a paper upon the Corpus Luteum, which was referred to a Committee, consisting of Drs. Horner, Goddard, and Dunglison.

Mr. George Ord was reëlected Librarian.

The following Standing Committees were appointed:—

Of Finance.—Clement C. Biddle, R. M. Patterson, Isaac Lea.

On the Hall.—G. Campbell, F. Fraley, John K. Kane.

On the Library.—Isaac Hays, G. Campbell, I. Pennington.

On Publication.—Isaac Lea, Isaac Hays, J. Francis Fisher.

Agreeably to a provision of the By-laws, the list of the surviving members of the Society was read. The number is 349; of whom 232 are residents of the United States, and 117 of foreign countries.

There being no quorum, for the election of members, present, the balloting for candidates was postponed.

The Librarian, to whom had been referred the request of the Trustees of the Western University of Pennsylvania, reported, and was discharged from farther consideration of the subject.

The Publication Committee reported the completion of Vol. IX. of the Transactions of the Society.

Stated Meeting, February 5.

Present, twenty-six members.

Dr. Franklin Bache, Vice-President, in the Chair.

A letter was received and read:—

From Antonio Ladislau Monteiro Baena, dated Pará, 18th December, 1846, announcing and accompanying a donation.

The following donations were announced:—

FOR THE LIBRARY.

Mémoires de l'Académie Royale des Sciences de l'Institut de France. Tome XVIII. Paris, 1842. Tome XIX. Paris, 1845. 4to.—*From the Royal Institute of France.*

Mémoires présentés par divers Savants à l'Académie Royale des Sciences de l'Institut de France, et Imprimés par san ordre. Sciences Mathématiques et Physiques. Tomes VII. VIII. et IX. Paris, 1841—1846. 4to.—*From the same.*

Mémoires de l'Académie Royale des Sciences Morales et Politiques de l'Institut de France. Tomes III. IV. Paris, 1841—1844. Savants Etrangers. Tome I. Paris, 1841. 4to.—*From the same.*

Mémoirès de l'Institut Royal de France. Académie des Inscriptions et Belles-Lettres. Tome XIV. 2 Parties. Paris, 1840—1845. Tome XV. 2 Parties. 1842—1845. Tome XVI. Seconde Partie. 1846. 4to.—*From the same.*

Mémoires présentés par divers Savants à l'Académie Royale des Inscription et Belles-Lettres de l'Institut de France. Deuxième Série. Antiquités de la France: Tome I. Seconde Partie. Paris, 1843. Première Série: Sujets divers d'Érudition. Tome I. Paris, 1844. 4to.—*From the same.*

Notices et Extraits des Manuscrits de la Bibliothèque du Roi et autres Bibliothèques. Publiés par l'Institut Royal de France. Faisant suite aux Notices et Extraits lus au Comité établi dans l'Académie des Inscriptions et Belles-Lettres. Tome XIV. 2 Parties. Paris, 1843. 4to.—*From the same.*

Journal Asiatique, publié par la Société Asiatique. Quatrième Série.

Tome VIII. No. 37. Août, Septembre, 1846. 8vo.—*From the Asiatic Society of Paris.*

The Quarterly Journal of the Geological Society of London. No. 8. November 1st, 1846. 8vo.—*From the Geological Society.*

Proceedings of the Historical Society of Pennsylvania. Vol. I. September, 1846. No. 7. This number contains some account of the British Army under the command of General Howe; and of the Battle of Brandywine, on September 11th, 1777. By Joseph Townsend. 8vo.—*From the Historical Society.*

Proceedings of the Historical Society of Pennsylvania. Vol. I. December, 1846. No. 8. This number contains Papers relating to the Battle of Brandywine, supplementary to the "Account of the Battle, by Joseph Townsend." 8vo.—*From the same.*

The African Repository and Colonial Journal. Vol. XXIII. Feb. 1847. No. 2. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLII. No. 252. December, 1846. No. 6. 8vo.—*From Dr. R. M. Patterson.*

The Medical News and Library. Vol. V. February, 1847. No. 50. 8vo.—*From Messrs. Lea & Blanchard.*

The British Almanac of the Society for the Diffusion of Useful Knowledge, with the Companion, for the Year of our Lord 1847. London. 12mo.—*From Petty Vaughan, Esq.*

Letter from the Secretary of the Treasury, transmitting the Report of the Superintendent of the Coast Survey, showing the progress of that work. Twenty-ninth Congress, Second Session, House of Representatives. Document No. 6.—*From Professor A. D. Bache.*

Report of the State Treasurer, on the Finances of Pennsylvania, to the Legislature of the State, at the Commencement of the Session of 1847. Harrisburg. 8vo.—*From C. B. Trego, Esq.*

Diecureo ou Memoria sobre a Intrusão dos Francezes de Cayena nas terras do Cabo do Norte em 1836. Por Antonio Ladislau Monteiro Baena. Maranhão, 1846. 4to.—*From the Author.*

On Three Several Hurricanes of the Atlantic, and their Relations to the Northers of Mexico and Central America, with Notices of other Storms. By W. C. Redfield. New Haven, 1846. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Troisième Série. Tome XVIII. Novembre, 1846. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secrétaires Perpétuels. Tome XXIII. Nos. 13, 14, 16, 17, 18. 4to.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. December, 1846. Nos. 196 and 197. Sup. 8vo.

Astronomische Nachrichten. Nos. 578, 582, 583. 4to.

The Committee (Drs. Horner, Goddard, and Dunglison) to whom was referred the communication of Dr. Meigs, on the Corpus Luteum, reported in favour of its publication, which was ordered accordingly.

Upon carefully examining a portion of fresh vitellus ovi in the microscope, numerous corpuscles, granules, punctiform bodies, and particles of oil, are seen swimming in a transparent liquid.

Upon placing a portion of fresh corpus luteum of the cow on the compressorium, and turning the screw, there escapes from the crushed mass a quantity of corpuscles, granules, punctiform bodies, and oil globules, swimming in a transparent liquid.

The appearances are so similar in the two observations, that it is scarcely possible to discover any difference, save that occasioned by portions of tissue, which are the detritus of the crushed mass of corpus luteum.

The corpuscles, whether those seen in the yelk, or those observed in the crushed corpus luteum, are equally transparent, and transmit a yellow light.

On crushing a bit of corpus luteum, there escapes much granular matter accurately resembling that of the granular membrane of the graafian follicle. This, even where great care was taken to select the portion from near the exterior superficies of a large corpus luteum, avoiding to take any from the inner surface of the crypta. This similarity suggests an identity in the nature and origin of the granules.

Dr. M. believes the colouring matter, and the chief constituent bulk of a corpus luteum, to be true vitellary matter, deposited outside of the inner membrane (ovisac) of a graafian vesicle.

He supposes this view of the nature of the corpus luteum to be new, and gives a summary account of the discovery of the germinal vesicle in the hen's egg, by Purkinje; in the mammiferous ovulum by Van Baer; and also the detection of the macula germinativa by Wagner.

The writers just named, and also MM. J. Muller, Schwann, Henle, and Huschke, take no such view of the case. The same is true as to MM. Gendrin, Negrier, Lee, Jones, Raciborski, Ollivier d'Angers, and Pouchet. Drs. Montgomery and Swan, Messrs. Flourens, Velpeau, and Moreau, do not allude to it. Bischoff and Bernhardt are equally silent.

Dr. M. refers the observation to the corrections of better observers.

Dr. Meigs' memoir being ordered for publication in the Transactions, we confine ourselves here to the resumé of his observations.

1. Equal masses of yelk and corpus luteum are equally yellow.

2. They alike fill the tube of the microscope, before the focus is obtained, with a brilliant yellow light.

3. They alike consist of a pellucid fluid, in which float granules, corpuscles containing yellow liquid, oil globules, and punctiform bodies.

4. These bodies, placed in the same glass and diligently compared, exhibit the same forms, size, tint and refraction.

5. Yelk, boiled hard, is rendered granular and friable; it is coagulated by heat.

6. Corpus luteum boiled becomes hard, granular, and friable; it is coagulated by heat.

7. Both substances, raw or boiled, stain white paper yellow.

8. There is this difference. The crushed mass of corpus luteum contains patches and shreds of laminar tissue, detritus and blood discs forced out by the compressor, which cannot occur in the yelk, as it is confined only within a vitellary membrane.

9. They refract light alike.

10. Projected on a live coal, they each alike give out the odour of roasted eggs.

The function of the stroma of an ovary is to produce vitellary matter, which is the pabulum of the germ and the embryo; vitellary matter is germinal matter. Whether the germ be a cast-off acinus, or a nucleated nucleole of the germinal vesicle, it is clear that it is a stroma-force that produces it.

There can be no mammiferous germ independent of vitellary matter; and as the stroma of the ovary yields the material for the construction of the ovulum, the force that is employed in its elaboration remains active, even after the maturation of that ovulum; and the surplus production being deposited outside of the ovisac or inner concentric of the folliculus graafianus, we have, as a natural consequence, the corpus luteum. Therefore the corpora lutea of mammals, whether those included under the head of true or false corpora lutea, are composed of the surplus production and deposite of vitellary matter in the stroma of ovaria.

Dr. M. refers to the importance of this observation in its medico-legal relations; and should his opinions be found correct, it may serve to settle a long controverted point in physiological anatomy.

Dr. Patterson was excused from the duty of preparing an obituary notice of the late Dr. Adrain.

Mr. Ord presented to the Society specimens of so called "Fixed Mercury," sent to the Society by Mr. Sartori, which were referred for examination to Mr. Eckfeldt and Dr. Boyè.

On motion of the Librarian, it was ordered that Vols. VIII. and IX. of the Transactions of the Society be presented to the Historical Society of Pennsylvania, and that it be placed on the list of correspondents of this Society.

On motion of the Librarian, the subject of the lease of the rooms now occupied by the Athenæum was referred to the Committee on the Hall, with power to take order.

Stated Meeting, February 19.

Present, twenty members.

Dr. CHAPMAN, President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Mémoires de la Société Royale des Antiquaires du Nord. Copenhague, 1844. 8vo.—*From the Royal Society of Northern Antiquaries.*

Bulletin de la Société Royale des Antiquaires du Nord, 1843. Copenhague, 1845. 8vo.—*From the same.*

Americas Arctiske Landes Gamle Geographie efter de Nordiske Oldskrifter ved Carl Christian Rafn. Særskilt aftryk af Grönlands Historiske Mindesmærker, udgivne af det Kongelige Nordiske Oldskrift-Selskab. Kjobenhavn, 1845. 8vo.—*From the same.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIII. No. 254. Third Series. Vol. XIII. Feb. 1847. No. 2. 8vo.—*From Dr. R. M. Patterson.*

A Practical Treatise on the Diseases of Children. By D. Francis Condie, M.D. Second Edition, revised and augmented. Philadelphia, 1847. 8vo.—*From the Author.*

Report of the President and Managers of the Schuylkill Navigation Company to the Stockholders, Jan. 4, 1847. 8vo.—*From the President and Managers.*

Haverford Revisited: being a Memento of a Day spent on the Old Grounds, by a number of the former Pupils, 12th Month 29th, 1846. Philadelphia, 1847. 8vo.—*From Mr. Townsend Ward.*

A Plan of the City and Environs of Philadelphia, surveyed by N. Scull and G. Heap. Originally engraved by W. Faden, and republished by Thomas Fisher. 1847. On a roller.—*From Mr. Thomas Fisher.*

Facsimile of the Merchants and Citizens of Philadelphia in 1765, opposed to British Encroachments, the Stamp Act, &c. On a roller.—*From the same.*

Dr. Patterson laid before the Society a communication from Mr. Sears C. Walker, of Washington, in regard to the steps which led to the detection, on the 2d of February, of the very remarkable coincidence between the computed place of the planet Leverrier, and the observed place of a star of the 7–8 magnitude, which passed the meridian of Paris at 14*h.* 11*m.* 23*s.* of Lalande's clock-time, 10th May, 1795; which communication was referred to a committee, consisting of Dr. Patterson, Prof. Frazer, and Mr. Downes.

Authority was given to the Librarian to permit certain autographic letters in the Library to be copied by Mr. John F. Watson, for purposes of publication, it being understood that the manuscripts should not leave the hall of the Society.

Stated Meeting, March 5.

Present, twenty-three members.

Dr. Bache, Vice-President, in the Chair.

Letters were received and read:—

From Mr. John P. Brown, dated Constantinople, August 20th, 1846, announcing a donation to the Library:—

From A. D. Bache, Superintendent U. S. Coast Survey, dated Washington, 26th Jan., 1847, announcing a donation:—

From the New Jersey Historical Society, dated Newark, 22d February, 1847, acknowledging the receipt of the Transactions and Proceedings of this Society: and,—

From the Proprietors of the Bowditch Library, dated 28th February, 1847, acknowledging the receipt of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Mémoires présentés à l'Académie Impériale des Sciences de Saint-Pétersbourg, par divers savans, et lus dans les Assemblées. Tome V. 6 Livraisons. Tome VI. 1re Livraison. Saint-Pétersbourg, 1846. 4to.—*From the Imperial Academy of Sciences.*

Mémoires de l'Académie Impériale des Sciences de Saint-Pétersbourg. VIme Série. Sciences Mathématiques, Physiques et Naturelles. Tome VII. Seconde Partie. Sciences Naturelles. Tome V. 3me et 4me Livraisons. Saint Pétersbourg, 1846. 4to.—*From the same.*

Mémoires de l'Académie Impériale des Sciences de Saint-Pétersbourg. VIme Série. Sciences Mathématiques, Physiques et Naturelles. Tome VIme. Première Partie. Sciences Mathématiques et Physiques. Tome IVme. 2me Livraison. Saint-Pétersbourg, 1845. 4to.—*From the same.*

Transactions of the Geological Society of London. Second Series. Vol. VII. Part 3. London, 1846. 4to.—*From the Geological Society.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. November 13th, 1846. No. 9. 8vo.—*From the Society.*

The Journal of the Royal Geographical Society of London. Volume the Sixteenth. Part II. 1846. 8vo.—*From the Society.*

Grammaire Raisonnée de la Langue Ottomane, suivie d'un Appendice contenant l'Analyse d'un morceau de composition Ottomane, où sont démontrées les différentes Règles auxquelles les Mots sont assujettis. Par James W. Redhouse. Paris, 1846. 8vo.—*From Col. Williams.*

New Haven Harbour, founded upon a Trigonometrical Survey under the direction of F. R. Hassler. Published in 1846. A. D. Bache, Superintendent.—*From Prof. Bache, by direction of the Treasury Department.*

Little Egg Harbour, founded upon a Trigonometrical Survey under the direction of F. R. Hassler. Published in 1846. A. D. Bache, Superintendent.—*From the same.*

An Address delivered at the close of the Sixteenth Exhibition of American Manufactures, held in Philadelphia, by the Franklin Institute of the State of Pennsylvania for the Promotion of the Mechanic Arts, October 30th, 1846. By Solomon W. Roberts, Civil Engineer. Philadelphia, 1846. 8vo.—*From the Author.*

Annual Report of the Trustees of the State Library, made to the Legislature, January 16th, 1847. Albany, 1847. 8vo.—*From the Trustees of the New York State Library.*

Report of the Organization Committee of the Smithsonian Institution: With the Resolutions accompanying the same, and adopted by the Board of Regents: Also, the Will of the Testator, the Act accepting the Bequest, and the Act organizing the Institution. Washington, 1847. 8vo.—*From the Hon. George M. Dallas.*

The Nineteenth Annual Report of the House of Refuge of Philadelphia. With an Appendix. Philadelphia, 1847. 8vo.—*From the Managers.*

The Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1846. Philadelphia, 1847. 8vo.—*From the Directors.*

The Medical News and Library. Vol. V. March, 1847. No. 51. 8vo.—*From Messrs. Lea & Blanchard.*

Notice sur la Succession des Poissons Fossiles dans la Série des Formations Géologiques. Introduction à une Monographie des Poissons Fossiles du vieux Grès rouge. Tableau Synoptique des Poissons Fossiles du Système dévonien. Essai sur la Classification des Poissons. Par Louis Agassiz.—*From the Right Rev. Bishop Potter.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Scientific Memoirs, selected from the Transactions of Foreign Academies of Science, Learned Societies, &c. Edited by Richard Taylor, F.L.S. &c. Vol. IV. Part XVI. December, 1846. 8vo.

The Edinburgh New Philosophical Journal. Conducted by Professor Jameson. Vol. XLII. No. 83. January, 1847. 8vo.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. No. 198. January, 1847. 8vo.

Astronomische Nachrichten. Nos. 579, 584, and 585. 4to.

Prof. Tucker read an "Essay upon Cause and Effect, being an Examination of Mr. Hume's Doctrine that we can perceive no necessary connexion between them," which was referred to a Committee, consisting of Right Rev. Bishop Potter, Dr. Demmè and Dr. Bethune.

Dr. Patterson again called the attention of the Society to the circumstance mentioned at the last meeting, viz. that Mr. Sears C. Walker had, on the 2d of February, detected a missing star in the Histoire Céleste Française, observed by Lalande on the 10th of May, 1795, which was near the path of Leverrier at that date, and which may possibly have been that planet.

Shortly after the arrival of the news of the physical discovery of the planet, on a suggestion by Mr. Herrick, of its possible identity with the Wartman planet of 1831, Mr. Walker engaged in the study of the orbit of the former, and soon concluded that it could not have been Leverrier, nor could any set of elements, with a mean distance at all probable, be found, that would represent the four places of Wartman's planet, as published in the Comptes Rendus for 1836.

In his first inquiry, he learned the probable near approach of the orbit of Leverrier to the circular form. The analogy of the remote planets with great masses led to the same conclusion.

Jupiter's eccentricity is		0.048
Saturn's	,,	0.056
Herschell's	,,	0.047
Leverrier's	,,	$<$0.060 conjectured.

If such were the character of the orbit, the radius vector, at so great a distance, would vary but little with the time, and in a first approximation might be wholly neglected. From the planets' places

Sept. 26, Oct. 26, and Nov. 1, on the supposition of a constant radius vector, he computed the following table of the average true sidereal daily motion n', n & $n_{,}$ for the first, whole and last interval respectively, for various radius vectors. Also the mean daily siderial motion μ for $r = a$, or radius vector equal the mean distance.

r	n'	n	$n_{,}$	μ
	$''$	$''$	$''$	$''$
34	12.8	16.7	19.7	17.90
33	14.6	17.7	20.3	18.71
32	16.6	18.8	20.8	19.60
31	19.4	20.1	21.2	20.56
30	21.7	21.6	21.6	21.58
29	24.1	23.4	22.0	22.67

The most plausible value of r in this table is that in which $(n - n')^2 + (n - n_{,})^2$ is a minimum. This gives nearly $r = 30$, $n' = n = n_{,} = \mu$. Hence the orbit comes out nearly a circle, unless we suppose the planet to present, at this time, a value of r *accidentally* equal to a, in a more eccentric ellipse with true anomaly nearly 90°.

Accordingly, he selected for the next trial the circular hypothesis, for which two places of the planet, Sept. 26th and Dec. 26th, sufficed. The first was derived from the mean of nine European observations. The last from his own observations with the Washington equatorial, consisting of thirty-three comparisons in R. A. and eleven in Dec., with the two stars first selected for comparison by Encke. In the computations all the small corrections were taken into account. The geocentric longitude α and latitude δ, were referred to the mean equinox and obliquity of Jan. 1st, 1847. The planet's place was corrected for aberration as a fixed star, for planetary parallax, but not at first (though subsequently so) corrected for planetary aberration. In this manner, he obtained Elements I. and computed an ephemeris for the six months following August 1st. He then reduced the entire collection of European observations received, seventy nights' works in all, and the forty-six nights' works of American observations at the Washington Observatory, and compared them with the ephemeris. The sixteen normal places indicated the following comparison between theory and observation. The dates are referred to mean time, Greenwich. The places are reduced like those of Sept. 26th and Dec. 26th, but are not corrected for planetary aberration.

Normal Places of Leverrier.

No.	$t = 1846$ years.	Obs. Geo. lon. α	No. of Obs. hh	Obs. Geo. lat. δ	No of Obs. hh	Obs.–Eph. $\Delta\alpha$	Obs.–Eph. $\Delta\delta$
	d	° ′ ″		° ′		″	″
1	215.5670	327 9 49.34	(1)	−0 31 36.24	(1)	−16.75	−0.63
2	223.5441	326 57 9.04	(1)	44.09	(1)	− 7.27	−1.03
3	270.5	325 46 25.82	(16)	57.99	(16)	− 1.02	+0.84
4	276.5	39 54.23	(13)	56.14	(13)	+ 0.27	+1.51
5	282.5	34 16.11	(13)	56.09	(13)	+ 1.12	+0.03
6	290.5	28 21.99	(12)	53.16	(12)	+ 3.13	+0.80
7	298.5	24 25.25	(18)	51.13	(19)	+ 4.19	+0.56
8	306.5	22 32.46	(16)	47.61	(6)	+ 3.02	+0.23
9	313.5	22 40.00	(4)	45.15	(3)	+ 2.40	−0.68
10	319.5	24 6.40	(4)	41.51	(6)	+ 1.95	+0.51
11	325.5	26 50.59?	(4)	37.30?	(4)	+ 3.77?	+2.21?
12	334.5	33 9.44	(7)	33.92	(6)	+ 2.46	−1.13
13	345.5	44 26.93	(4)	30.79	(4)	+ 0.96	−0.03
14	353.5	54 58.01	(2)	27.10	(2)	− 0.72	+1.51
15	359.5	326 4 2.52	(3)	26.04	(3)	− 0.23	+0.77
16	372.5	326 26 39.11	(3)	23.60	(3)	− 4.40	+1.28

The residual errors show, in the course of six months, a sensible deviation of the orbit from the circular form. They also show, that for an eccentricity greater than 0.06, the true anomaly must be nearly $\pm 90°$; a possible, but it may be said an improbable case.

The next step was to make equations of condition of the form $o = a\,x + b\,y + c\,z + n$. In which a, b, c, are computed coefficients; x is $50 \times \Delta r$, y is $10 \times \Delta \nu$, $z = \Delta \lambda_{300}$, ν is the daily increase of the true heliocentric longitude, λ_{300} the longitude on the 300th day of the year. Finally, n is the equivalent heliocentric value of $\Delta\alpha$ above, with sign changed. The number of equations was reduced to 9, by taking, first, the third of the mean of 1 and 2; next 3, 4, 5, 6, and 7; then the mean of 8, 9, and 10. No. 11 is rejected; then the mean of 12 and 13, and lastly of 14, 15, and 16. To these nine conditional equations equal weights were assigned as follows:—

					Residual error. ϵ
0	$= -0.303 \times x$	$-2.700 \times y$	$+\frac{1}{3} \times z$	$+3''.88$	$-0''.08$
	$= +3.016$	-3.000	$+1$	$+1.00$	$+0.49$
	$= +3.363$	-2.400	$+1$	-0.27	$+0.19$
	$= +3.685$	-1.800	$+1$	-1.10	$+0.22$
	$= +4.038$	-1.000	$+1$	-3.07	-1.03
	$= +4.268$	-0.200	$+1$	-4.12	-1.31
	$= +4.594$	$+1.267$	$+1$	-2.44	$+1.03$
	$= +4.248$	$+3.950$	$+1$	-1.73	-0.13
	$= +3.332$	$+6.133$	$+1$	$+1.81$	-0.16

The solution by least squares gives,—

0	=	118.879 × x	+ 7.477 × y	+ 30.443 × z	− 45.629
0	=	7.477	+ 85.149	+ 0.250	+ 1.687
0	=	30.443	+ 0.250	+ 8.111	− 8.627

Whence $\Sigma\, \varepsilon\varepsilon = 4''.21$

$x = 3.255712$

$y = -0.272963$

$z = -11''.1475$

$r = 29.939950 + \frac{x}{50} = 30.00506$

$n = \frac{v_{359} - v_{270}}{t_{359} - t_{270}}$ corrected for ab. $= 21''.65789$

$a = \frac{1}{\frac{2}{r} - \left(\frac{rn}{\varkappa^2}\right)^2} = 30.20058$

$\varkappa$ = Gauss' constant of earth's velocity.

$\mu = \varkappa\, a^{-\frac{3}{2}} \quad = 21.37881$

Period $= T = 165.97030$ tropical years.

Thus it appeared that Elements II. assuming the eccentricity and perihelion point unknown, and neglecting the daily variations of the radius vector, would give an ephemeris following the planet's path for a period of $5\frac{1}{2}$ months, with a sum of the squares of nine discrepancies $= 4''.21$, or a probable error of $\pm\, 0''.48$ for any comparison.

This residual error might perhaps have been still further reduced by inserting a term of the form $d \times u$, where u is the daily variation of the radius vector, and $d = a\, \Delta\, r + \left(\frac{\Delta\lambda}{\Delta\, t}\right) \Delta\, \lambda$, $\frac{\Delta\lambda}{\Delta\, t}$ being the time variation of the daily motion in true longitude, on the principle of conservation of areas. Inasmuch as these terms become more sensible in the course of a few additional months, it was thought better to postpone the research after the final values of e and π; and by assigning to them suitable limits of $e < 0.06$, and to π its corresponding value from the equation, $\cos v = \frac{a\,(1-e^2) - r}{e\, r}$, then to compute the locus of Leverrier for any given date, and search for it as a missing star observed that night in some of the ancient catalogues.

The fact of $(n - \mu) = 0''.28$, shows that the limit of v is $\pm\, 90°$, thus,—

For $e = 1.00$	$v = \pm 90.0$	
		2.8
For $e = 0.06$	$v = \pm 87.2$	
		1.8
For $e = 0.05$	$v = \pm 85.4$	
		2.4
For $e = 0.04$	$v = \pm 83.0$	
		3.8
For $e = 0.03$	$v = \pm 79.2$	
		7.0
For $e = 0.02$	$v = \pm 72.2$	
		22.1
For $e = 0.01$	$v = \pm 50.1$	
		50.1
For $e = 0.006474$	$v = 0.0$	

Hence the à priori probability that e falls below 0.02 is $\frac{72.2}{90}$, and that it falls below 0.01 is $\frac{50.1}{90}$, and this probability is based on a theory that has for its probable discrepancy from observation for $5\frac{1}{2}$ months $\pm 0''.49$.

The next inquiry is, how far this small period and small eccentricity may be reconciled with the conditional equations obtained by Leverrier and Adams, between its perturbations of Herschel and the residual perturbations of that body.

In the supplement to the Nautical Almanac for 1852, Mr. Adams states that a mean distance of about 32, and small eccentricity, agrees with his computation better than the two hypotheses of a mean distance much greater; and that the small mean distance and eccentricity are in accordance with the planet's present place in the heavens.

From the results of Mr. Adams' two hypotheses, Mr. Walker derives the formula,—

$$e = 0.16103 \left[\frac{0.12062}{0.16103}\right]^{\left(\frac{\log.\frac{a}{38.4}}{\log.\frac{1}{1.03}}\right)}$$

This gives $e = 0.0153883$ for $a = 30.20058$.

It remains to consider M. Leverrier's paper in the Additions to the Connaissance des Temps for 1849.

He there fixes the place of the planet at $240° \pm 5°$ in 1840, for the longitude of the epoch. Mr. Walker's Elements II. would give with eccentricity < 0.06, the epoch $= 226°$ nearly. Hence the limit of M. Leverrier would be required to be doubled to include Mr. Walker's solution.

This limit of M. Leverrier may be readily extended to double his assigned value, if we do not require this one disturbing planet to ex-

haust the residual perturbations of Uranus, but are willing to leave something to other still superior planets to be discovered hereafter.

It was in the course of an examination of M. Leverrier's paper, by Prof. Peirce, of Harvard University, in company with Mr. Walker, for the purpose of explaining this discrepancy, that the suggestion was made by the former, of the possibility of some neglected inequality of long period being sufficient to account for it. To their great surprise, on comparison it was found that

For Uranus,	$\mu' = 42.''23312$	Astr. Nachr. 580.
Walker's Elements II., Leverrier,	$\mu = 21.37881$	
	$2\mu - \mu' = 0.52450$	

Here, then, if Mr. Walker's period is right, would be the most remarkable inequality in the primary solar system. On a careful examination of Leverrier's paper, it does not appear that he took this into account; but instead of it, that he used that of $(3\mu - \mu')$, suited to the first assumed mean motion for $a = 38.37$. When we consider that this inequality, in its terms depending on the square of the time, amounts to nearly one-twelfth of the entire perturbations of Uranus, by Leverrier, in Flamsteed's time and at present, and that a similar inequality of still greater power, if substituted in its place, might amount to a much larger proportion, it would seem that the question of *à priori* limits from residual perturbations depends much on a circumstance not noticed by M. Leverrier, viz. the possibility of a powerful inequality of the order $(2\mu - \mu')$. If, then, it be probable that Mr. Walker's period is correct, that period, by means of this new inequality, explains its departure from the limits assigned by M. Leverrier.

Since, then, Mr. Walker's Elements II. are not necessarily incompatible with the limits of M. Leverrier and Adams, it was desirable to see whether the indeterminate quantities e and π could be supplied by finding some ancient observation.

For this purpose, on the 2d of February he examined the principal catalogues.

I. Bradley seldom observed stars of 7th and 8th magnitude.

II. Mayer.

III. Lacaille.

IV. Piazzi. There is no star among the list "not found in the Catalogues," from 1792 to 1798, which could be supposed to be Leverrier. The subsequent observations of Piazzi, under pro-

gress of publication by the Vienna Observatory, have not yet been received.

V. Lalande, H. C. See subsequent discussion.

VI. Bessel in his zones never observed so low as the actual Leverrier region.

VII. Paramatta Catalogue, seldom observed north of — 33°.

VIII. Madras Catalogue. Mr. Taylor confined himself chiefly to reviews of Baily and Piazzi.

Thus it appears, that though doubtless Leverrier has been seen by some of these authors, still the Histoire Céleste afforded the only chance of easily finding an observation of this planet. For limits of $e < 0.06$, the only nights in which Lalande had Leverrier in his region, were the 8th and 10th of May, 1795. For the latter date, Mr. Walker computed the locus of Leverrier, for various eccentricities, and for $\pm v$, as in the following table, in which Leverrier's R. A. and Dec. are for the mean equinox of 1800, to correspond as a star to Hussey's XIVth Hour.

	e	Leverrier's A. 1800.	Leverrier's D. 1800.
		$h.$ $m.$ $s.$	° ′
For $-v$	0.06	13 45 50	— 9 3.1
,, ,,	0.05	13 49 48	— 9 24.9
,, ,,	0.04	13 53 51	— 9 47.0
,, ,,	0.03	13 57 52	— 10 8.6
,, ,,	0.02	14 1 56	— 10 29.6
,, ,,	0.01	14 6 22	— 10 53.5
For $v = 0$	0.006470	14 9 18	— 11 8.8
For $+v$	0.01	14 12 9	— 11 23.5
,, ,,	0.02	14 16 36	— 11 44.5
,, ,,	0.03	14 20 35	— 12 6.1
,, ,,	0.04	14 24 29	— 12 25.2
,, ,,	0.05	14 28 19	— 12 44.4
,, ,,	0.06	14 32 8	— 13 2.6

Mr. Walker then formed the following catalogue of all the stars in the H. Céleste, May 8th and 10th, 1795, within 15′ north or south of the locus of Leverrier, as follows:

No.	Mag.	R. A. 1800.	Dec. 1800.	Authority.	
		h. *m.* *s.*	°		
1	9.10	13 50 36	— 9 24.0	L.	
2	7. 8	13 52 48	— 9 55.8	L.	
3	7. 8	13 52 53	— 9 45.7	L. B.	
4	8. 9	13 57 13	— 10 11.7	L. B.	
5	9	13 59 54	— 10 26.4	L. B.	
6	8	14 0 0	— 11 26.5	L. B.	
7	8	14 12 0	— 11 8.3	L. B.	
8	7. 8	14 12 09	— 11 20.96	L.	missing *
9	8	14 29 37	— 13 10.7	L. B.	

In this list, there are only three stars, viz: Nos. 1, 2 and 8, which have not also been seen by Bessel. No. 1 is too small, 9.10 magnitude. No. 2 was considered too far south (17′) of the computed place of Leverrier. No. 8 was only 2′ north of the computed locus of Leverrier. It was of the right magnitude and not in Bessel. This circumstance was noticed by Mr. Walker on the 2d of February, and notified by letter, dated that evening, to Lieut. Maury, the Superintendent of the Washington Observatory, with a statement of Mr. Walker's belief, that as soon as the weather, then cloudy, should become clear, that star on examining the heavens would be missing.

On the 4th of February, Prof. Hubbard examined the heavens, and found that the star was missing. Here, then, was an argument in favour of the identity of the missing star and the planet Leverrier. The general view of the case was this. Mr. Walker believed the limits were sufficiently extensive to embrace the Leverrier region. It was probable that Lalande had not omitted a star of the 7, 8 magnitude. No other star could be found in the H. Céleste which, if now missing, could be reasonably supposed to have been the planet. The alternative left was to presume, either that Lalande did not observe this planet, or that this missing star was Leverrier.

To offset this probability, however, Mr. Walker's attention has since been called to a circumstance not noticed by him at the time, viz: that the missing star has the mark of a colon (:) after it in the H. Céleste, by which Lalande used to indicate that the declination was doubtful to the extent of $\pm$ 5′. As this would leave it within admissible limits, Mr. Walker would still have considered their identity as not being improbable, if the two stars seen nearly at the same time by Lalande, and marked with different declinations and magnitudes,

could not be supposed to have been one. In this case, no star would be missing.

The entries in the H. Celeste are thus made:—

No.	Wire I.	Mid Wire. h. m. s.	Wire II. h. m. s.	Zenith Distance. ° ′ ″
1 ,	✱ 7, 8	14 11 23.5		60 7 19:
2 ,	2 Librae 6	14 12 3.4	14 12 31.5	59 33 59
3 ,	✱ 8, 9		14 11 50.5:	59 54 40

There is no principle of construction of these entries, by which No. 1 and 2 are made the same. Yet the three entries with two colons, and the third entry out of order in place, prevent the strong inference that might be drawn from an undoubted observation of No. 1, which is now missing, while No. 2 is now found, and was observed by Bessel.

Viewing all the circumstances of the case, Mr. W. though strongly inclined to the affirmative, would not venture to express a final opinion on the question of identity at this time. For the sake of priority in completing the orbit of Leverrier, if this identity should at any time hereafter be confirmed, he had computed a third set of Elements III., which, with I. and II., are contained in the following table:—

Elements of Leverrier referred to the mean Equinox of Jan. 1, 1847, and date of mean time, Greenwich.	Circular Hypothesis. I.	Elliptic Hypothesis. II.	Hypothesis of identity with missing star. Elliptical Elements. III.
Longitude of perihelion, π	Unknown.	Unknown.	0° 12′ 25″.51
,, ascending node ☊	129° 48′ 23″.16	129° 48′ 23″.16	131° 17′ 35″.80
,, epoch, Jan. 1 '47, ϵ	Unknown.	Unknown.	328° 7′ 56″.64
,, on the orbit, Sept. 28th, 1846, ω	326° 59′ 41″.50	326° 59′ 34″.74	326° 59′ 34″.74
Radius vector, Sept. 28 '46, r	29.93995	30.00506	30.02596
Daily sidereal orbital motion, Sept. 28, 1846, n	21.65857	21.65789	21.64553
Inclination, i	1° 45′ 19″.88	1° 45′ 19″.88	1° 54′ 53″.83
Eccentricity, e	0.	Unknown.	0.0088407
Mean distance, a	29.93995	30.20058	30.25042
Period in tropical years, T	163.3259	165.9703	166.3813
Mean daily sidereal motion, μ	21″.65857	21″.37881	21″.32600

Authority was given to the President to address a memorial, on behalf of the Society, to the Legislature of Pennsylvania, asking permission to rent such parts of the building occupied by the Society as are not required for their use; and the Committee on the Hall were authorized to take such measures as may be necessary for presenting such memorial to the Legislature.

Stated Meeting, March 19.

Present, twenty-one members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were announced and read:—

From the Academy of Sciences of Stockholm, dated Stockholm, 10th October, 1846, announcing donations to the Library of the Society: and,—

From Dr. Joseph Emil Nürnberger, dated Landsburg, near Berlin, 10th November, 1846, announcing a donation to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Kongl. Vetenskaps-Akademiens Handlingar, för år 1844. Stockholm, 1846. 8vo.—*From the Royal Academy of Stockholm.*

Årsberättelse om Framstegen i Kemi och Mineralogi afgifven den 31 Mars, 1846; af Jac. Berzelius, K. V. A. Secret. Stockholm, 1846. 8vo.—*From the same.*

Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Nos. 8, 9, 10. 1845. Nos. 1 to 6, inclusive. 1846. 8vo.—*From the same.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. III. November and December, 1846. No. 6. 8vo.—*From the Academy.*

Populäres Astronomisches Hand-Wörterbuch. Von Dr. Joseph Emil Nürnberger. Erster Band. A-K. Kempten, 1846. 8vo.—*From the Author.*

Mittlere Oerter von 12000 Fix-sternen, für den Anfang von 1836,

abgeleitet aus den Beobachtungen auf der Hamburger Sternwarte von Carl. Rümker. Hamburg, 1846. 4to.—*From Professor Rümker.*

The Electrical Magazine, conducted by Mr. Charles V. Walker. Vol. II. No. 14. October, 1846. 8vo.—*From the Editor.*

The African Repository and Colonial Journal. Vol. XXIII. March, 1847. No. 3. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIII. No. 255. Third Series. Vol. XIII. March, 1847. No. 3. 8vo.—*From Dr. Patterson.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. No. 194. October, 1846. 8vo.

Astronomische Nachrichten. Nos. 575 and 576. Altona, September 10th and 19th, 1846. 4to.

Dr. Meigs read to the Society a paper upon the Marsupial Gestation of Didelphis Virginiana, which was referred to a Committee, consisting of Drs. Hays, Bache, and Condie.

The Committee on the Hall made a report upon the subject of the renting of the rooms now occupied by the Athenæum, referred to them on the 5th February, 1847.

The same Committee reported that the memorial to the Legislature, authorized at the last meeting of the Society, had been prepared, and placed in the hands of Mr. S. W. Roberts, by whom it had been presented to the Legislature, and the desired permission obtained.

Whereupon it was ordered that the thanks of the Society be returned to Mr. S. W. Roberts for his exertions in behalf of the Society, and that the Treasurer be authorized to repay to Mr. Roberts the sum expended by him while engaged in the business of the Society.

The Act of the Legislature referred to in the report of the Committee on the Hall was then read, and ordered to be entered at large upon the minutes of the Society.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. APRIL, MAY & JUNE, 1847. No. 38.

Stated Meeting, April 2.

Present, eleven members.

Dr. PATTERSON, Vice-President, in the Chair.

A letter was received and read:—

From P. de Angelis, dated Buenos Ayres, 14th January, 1847, announcing the transmission of certain documents relative to events on the Rio de la Plata.

The following donations were announced:—

FOR THE LIBRARY.

Collections of the New Jersey Historical Society. Vol. II. New York, 1847. 8vo. This Volume contains the Life of William Alexander, Earl of Stirling, Major General of the Army of the United States during the Revolution. By William Alexander Duer, LL.D.—*From the New Jersey Historical Society.*

The Medical News and Library. Vol. V. April, 1847. No. 52. 8vo.—*From Messrs. Lea & Blanchard.*

The Constitution of the United States of America; the Proximate Causes of its Adoption and Ratification; the Declaration of Independence, &c. &c. Two Copies. Washington, 1846. 12mo. *From the Hon. George M. Dallas.*

Report of the Secretary of the Treasury, transmitting a Report from the Register of the Treasury, on Commerce and Navigation. Senate, 29th Congress, 2d Session, Document No. 7.—*From the same.*

Mr. Webster's Vindication of the Treaty of Washington, of 1842; in a Speech delivered in the Senate of the United States, on the 6th and 7th of April, 1846. A revised and corrected Copy.—*From Major James D. Graham.*

The Committee (Dr. Patterson, Professor Frazer, and Mr. Downes), to whom had been referred Mr. Sears C. Walker's paper on the planet Neptune, read 19th February, 1847, reported, recommending its publication in the Transactions of the Society, which was ordered accordingly.

Dr. Patterson read a letter from Mr. Walker, dated Washington, 31st March, 1847, containing some observations concerning the identity of the planet lately discovered, with that of Leverrier.

Dr. Ludlow, from the Committee appointed to consider the propriety of amending the laws regulating nominations for membership, made a report, which was laid on the table.

Mr. Ord presented a letter, directed to C. W. Bacon, Esq., from Alexander Ray, of Washington City, asking that an examination might be made of the papers of the late Chas. Pettit, now in the Library of the Society, in order to discover whether there are among them any documents illustrative of certain claims for revolutionary services.

Whereupon leave was granted to Mr. Bacon to examine the said papers, under the direction of the Librarian.

Stated Meeting, April 16.

Present, twenty-seven members.

Dr. CHAPMAN, President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London, for the Year 1846. In Four Parts. 4to.—*From the Royal Society of London.*

List of the Royal Society, 30th November, 1846. 4to.—*From the same.*

Proceedings of the Royal Society of London. Nos. 62 to 66, inclusive. November 27th, 1845, to November 30th, 1846. 8vo. *From the same.*

Astronomical Observations made at the Royal Observatory, Greenwich, in the Year 1844, under the Direction of George Biddell Airy, Esq., M. A., Astronomer Royal. Published by order of the Board of Admiralty, in obedience to Her Majesty's Command. London, 1846. 4to.—*From the same.*

Transactions of the Royal Society of Edinburgh. Vol. XVII. Part II. Containing the Makerstoun Magnetical and Meteorological Observations for 1843. Edinburgh, 1847. 4to.—*From the Royal Society of Edinburgh.*

Astronomical Observations made at the Royal Observatory, Edinburgh. By the late Thomas Henderson, F.R.S. &c., Professor of Practical Astronomy in the University of Edinburgh, and Her Majesty's Astronomer for Scotland. Reduced and Edited by his Successor, Charles Piazzi Smyth. Vol. VI. For the Year 1840. Edinburgh, 1847. 4to.—*From the Royal Observatory, Edinburgh.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. December 11, 1846. No. 10. January 8, 1847. No. 11. 8vo.—*From the Astronomical Society.*

The Quarterly Journal of the Geological Society. Edited by the Vice-Secretary of the Geological Society. No. 9. February 1, 1847. 8vo.—*From the Geological Society of London.*

Journal Asiatique, ou Recueil de Mémoires, d'Extraits et de Notices relatifs à l'Histoire, à la Philosophie, aux Langues, etc., des Peuples Orientaux. Quatrième Série. Tome VIII. No. 38. Octobre, 1846. 8vo.—*From the Asiatic Society of Paris.*

Annuaire Magnétique et Météorologique du Corps des Ingénieurs des Mines de Russie, ou Recueil d'Observations Magnétiques et Météorologiques faites dans l'Étendue de l'Empire de Russie, et publiées par ordre de S. M. l'Empéreur Nicolas I., sous les auspices de son Exc. M. de Wrontchenko, Ministre des Finances. Par A. T. Kupffer, Directeur des Observatoires Magnétiques des Mines de Russie. Année, 1843. Nos. 1 et 2. St. Pétersbourg, 1845. 4to.—*From the Director, M. Kupffer.*

Annals of the Lyceum of Natural History of New York. Vol. IV. April, 1847. Nos. 8 and 9. 8vo.—*From the Lyceum of Natural History.*

A Discourse delivered before the Rhode Island Historical Society, on the evening of January 13, 1847. By the Hon. Job Durfee. Providence, R. I. 1847. 8vo.—*From the Society.*

The Annals and Magazine of Natural History, including Zoology,

Botany, and Geology. Vol. XIX. Nos. 124, 125. February and March, 1847. 8vo.—*From Sir Wm. Jardine, Bart.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XXVI. New Series. April, 1847. 8vo.—*From the Editor.*

The African Repository and Colonial Journal. Vol. XXIII. April, 1847. No. 4. 8vo.—*From the American Colonization Society.*

ournal of the Franklin Institute of the State of Pennsylvania. Vol. XLIII. No. 256. Third Series. Vol. XIII. April, 1847. No. 4. 8vo.—*From Dr. Patterson.*

The Potatoe Plant, its Uses and Properties; together with the Cause of the present Malady, the Extension of that Disease to other Plants, the Question of Famine arising therefrom, and the best Means of averting that Calamity. By Alfred Smee, F.R.S. London, 1846. 8vo.—*From the Author.*

Échalas, paisseaux et lattes (Médoc), remplacés par des lignes de fil de fer, Mobiles, établies au Printemps et enlevées à l'Automne, à la Mécanique. Par André-Michaux. Paris, 1845. 8vo.—*From the Author.*

Report of the Exploring Expedition to the Rocky Mountains, in the Year 1842, and to Oregon and North California, in the Years 1843–1844. By Brevet Captain J. C. Frémont. Printed by order of the Senate of the United States. Washington, 1845. 8vo.—*From the Honourable Thomas H. Benton.*

Topographical Map of the Road from Missouri to Oregon, commencing at the mouth of the Kansas in the Missouri River, and ending at the mouth of the Wallah Wallah in the Columbia. In VII. Sections. From the Field Notes and Journal of Capt. J. C. Frémont, and from Sketches and Notes made on the ground by his Assistant, Charles Preuss. Compiled by C. Preuss, 1846, by order of the Senate of the United States.—*From the same.*

Charge to the Graduates of Jefferson Medical College of Philadelphia, delivered March 25, 1847, by Professor Dunglison. Published by the Graduating Class.—*From the Author.*

Directions in Regard to the Operations of the Coast Survey, for 1847–48. Approved by the Treasury Department, March, 1847. *From Prof. Bache.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 586 to 589, inclusive. Altona, January 9, to February 25, 1847. 4to.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. Nos. 199, 200. February and March, 1847. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Academie des Sciences; par MM. les Secrétaires Perpétuels. Tome XXIII. Nos. 19 to 26, inclusive. November 9, to December 28, 1846. 4to.

The Committee (Drs. Hays, Bache and Condie), to whom had been referred the memoir of Dr. Charles D. Meigs, upon the reproduction of Didelphis Virginiana, read 19th March, 1847, reported, recommending its publication in the Transactions of the Society, which was ordered accordingly.

Professor Owen's paper on the reproduction of the kanguroo and the wombat, has left certain points still unsettled as to the reproduction of the marsupials; and MM. Milne Edwards and Pouchet, in their works, have left uncleared up several points, which it is the object of Dr. M.'s paper to explain.

The terms fœtus and embryo cannot properly be applied to the young of the didelphis while in the pouch; since, when first placed in the marsupium, the young opossum is endowed with all the attributes of a mammiferous quadruped in the full enjoyment of a real warm-blooded respiratory and digestive existence. None of the authors on this subject appear to have investigated the state of the early young; and the most vague and incorrect notions still prevail as to their condition.

On the 18th February, 1847, a light snow having fallen, the tracks of two opossums were followed on the 19th, over the snow, to the trunk of a hollow tree, wherein they had concealed themselves, and from which were taken a full grown male and female didelphis. It was supposed, from the appearance of the testes in the male, and the monotrem of the female, that the animals had retired for the rut, as they are rarely found in company at other seasons.

On the 27th February they were brought to me, and I carefully examined the marsupium, but could discover no trace of any mammary development of the base of the delicate nipples. February 28th, no change was discovered by inspection or careful palpation of the pouch. On Monday, March 1st, and on Tuesday, the 2d, there was not the least sign of change in the pouch. On Wednesday, the 3d, the mammary glands were visibly and palpably enlarged. On Thursday, 4th, still larger. On Friday, 5th, hard and

swollen. Saturday, 6th, passed without my inspection; but my servant examined the pouch, and discovered no young ones at the teats. At 3 P. M. on Sunday, 7th March, I opened the pouch, and discovered the young animals adhering to the nipples.

Here, then, was a manifest preparation for the reception of the marsupial young, began on Wednesday, the 3d March, and completed by Sunday, the 7th, which is four days. Hence it is clear that the notion heretofore entertained, that the embryo makes the teat wherever it happens to take hold, is unfounded, the preparation being as complete as in any other mammal.

The uterine gestation probably terminated on the night of Saturday, March the 6th, or the morning of Sunday, the 7th. The rut probably continued as late as the 18th or 19th February, which is 17 or 18 days; possibly the impregnations may have been a few days earlier than the said dates.

The observation settles, at least, the question as to one of the reproductive seasons, which in this case was February.

In Mr. Owen's observation on the kanguroo, the uterine gestation lasted thirty-nine days; but the kanguroo is a large animal in comparison; the opossum rarely being more than fifteen or sixteen pounds in weight.

Mr. Owen does not mention the preliminary condition of the mammary glands in the kanguroo.

Thirteen young opossums were attached to as many nipples, all strongly adhering, and busily employed in sucking the milk.

They moved the forearms, and paws, and heads, very freely; so that to open the sphincter marsupii was to disclose a very lively scene.

They were of a deep rose-tint, and without hair.

They were of equal size. I pulled one off from the nipple; and the attachment was so strong, that I expected to tear the body in two before I disengaged the mammilla from the stomal pore in which it was engaged. There was no bulb at the end of the nipple after the detachment of the young one.

No blood about the mouth or on the nipple followed the separation.

It was removed at 40 minutes past 7 P. M. It weighed exactly three grains and a half.

From the snout to the end of the tail it was eight-tenths of an inch long.

Laid in a watch glass, it moved freely round and round the glass, and turned over on one side and the other.

Examined by a lens, it respired by two nostrils and by the mouth. It died at ten minutes past nine o'clock, which was one hour and twenty-nine minutes after its separation, though exposed for some time to the cold air of the street.

The tongue was apparently equal to one-third the magnitude of the head—milk white, grooved so as to embrace half the cylindrical circumference of the teat, which was pressed, as to its other half, against the vault of the palate. The mouth was a pore, which I could not distinctly discern without a lens; the cavity of the mouth spacious. The diaphragm strong.

The heart, in its pericardium, large and powerful. The liver very large. The stomach filled with milk vesicles, examined in the microscope; the intestinal convolutions distended with milk and chyle, stained yellow with bile; the bladder of urine filled with fluid.

Two lungs, each consisting of minute transparent vesicles resembling small soap bubbles.

Such is the anatomy of the young opossum of three and a half grains, destined to attain a weight of fifteen or sixteen pounds.

While lying on the watch glass, I put the smooth point of a pencil to its stomal pore. The animal sucked at the pencil, and held on so firmly, that I could lift it partly off the glass by it.

Does this fact show that twenty-four hours earlier it could draw the delicate teat into the orifice?

The young, having the teat once in the mouth, cannot let it go; nor does it abandon it for many days. It adheres as the bitch adheres to the male organ of the dog.

I could discover no trace of an umbilicus. I sought for it with a good doublet. But it is not to be believed that a breathing, sanguiferous, digesting mammifer, can be developed independently of a placenta.

On Monday, March 12th, an animal being removed for dissection weighed twelve grains; it breathed thirty-two times per minute.

March 18th. A young one weighed eighteen grains. The tail very prehensile.

I immersed it in a cup of alcohol to kill it for dissection. It did not die in the fluid until it had been immersed in it for sixteen minutes.

The observations show the marsupial young to have a chylopoietic, warm-blooded, oxydating, innervating, and free-willing life, being as fully endowed with all the means of an independent existence, as the young of the elephant at the teat.

If this be so, all mystery as to the nature of the life of the marsupial young is at an end.

The Committee (Right Rev. Bishop Potter, Dr. Demmè, and Dr. Bethune), to whom had been referred Prof. Tucker's paper upon Cause and Effect, read 5th March, 1847, reported, recommending that the thanks of the Society be presented to Prof. Tucker for his paper, and that he be requested to prepare a copy, to be placed in the archives of the Society: which recommendation was adopted by the Society.

Mr. Ord announced the death of Mr. Charles A. Lesueur, of Havre, on the 12th December, 1846, in the 68th year of his age: whereupon Mr. Ord was requested to prepare an obituary notice of our late member, Mr. Lesueur.

The nominations for membership were then read and discussed, and the candidates balloted for.

On motion of Dr. Patterson, the project for the amendment of the By-laws, proposed by the Committee, was postponed until the next meeting.

The business of the meeting being finished, the ballot boxes were examined, and the following gentlemen declared to have been duly elected members of this Society:—

M. A. T. Kupffer, of St. Petersburg.
M. U. J. Leverrier, of Paris.
Mr. J. Y. Mason, of Virginia.
Mr. Richard A. Tilghman, of Philadelphia.
Prof. Wm. Procter, Jr., of Philadelphia.

Stated Meeting, May 7.

Present, twenty-two members.

Dr. Patterson, Vice-President, in the Chair.

Letters were announced and read:—

From l'Institut Royal des Sciences, Belles-Lettres et Arts des Pays-Bas, dated Amsterdam, 25th January, 1847, announcing

the transmission of the 3d Part of Vol. XII. of their new Memoirs:—

From the Corporation of the University in Cambridge, Mass., dated Cambridge, 1st December, 1846, acknowledging the receipt of No. 35, Vol. IV. of the Proceedings of this Society: and,—

From Wm. Procter, Jr. acknowledging the receipt of notice of his election to membership in the Society.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, ou Figures et Descriptions de Plantes Belgiques. Par Jan Kops, et J. E. Van der Trappen. Nos. 142 to 146, inclusive. Title and Index to Vol IX. 4to.—*From H. M. the King of the Netherlands.*

Nieuwe Verhandelingen der Eerste Klasse van het Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en Schoone Kunsten te Amsterdam. The 3d Part, and the completion of the XIIth Vol. 4to.—*From the Royal Institute of the Netherlands.*

Bulletin de la Société de Géographie. Troisième Série. Tome VI. Paris, 1846. 8vo.—*From the Geographical Society of Paris.*

Journal Asiatique, ou Recueil de Mémoires, d'Extraits et de Notices relatifs à l'Histoire, à la Philosophie, aux Langues et à la Littérature des Peuples Orientaux; et publié par la Société Asiatique. Quatrième Série. Tome VIII. No. 39. Novembre, Décembre, 1846. 8vo.—*From the Asiatic Society of Paris.*

Boletin de la Sociedad Economica de Amigos del Pais de Valencia. Año 7°. Tomo 4o. Noviembre, 1846. 8vo.—*From the Society.*

Boston Journal of Natural History, containing Papers and Communications read before the Boston Society of Natural History, and published by their direction. Vol. V. No. 3. Boston, 1847. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. III. Jan. and Feb. 1847. No. 7. 8vo.—*From the Academy.*

Proceedings of the Providence Franklin Society. Vol. I. April, 1847. No. 2. 8vo.—*From the Society.*

The African Repository and Colonial Journal. Vol. XXIII. May, 1847. No. 5. 8vo.—*From the American Colonization Society.*

The American Journal of Science and Arts. Conducted by Prof. B.

Silliman, B. Silliman, Jr., and James D. Dana. Second Series. No. 9. May, 1847. 8vo.—*From the Editors.*

The Medical News and Library. Vol. V. May, 1847. No. 53.—8vo.—*From Messrs. Lea & Blanchard.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIII. No. 257. Third Series. Vol XIII. May, 1847. No. 5. 8vo.—*From Dr. Patterson.*

Critical and Miscellaneous Essays. By Alexander H. Everett. Second Series. Boston, 1846. 12mo.—*From the Author.*

Catalogue de la Bibliothèque de M. Libri. Belles-Lettres. 1re Partie. Paris, 1847. 8vo.—*From M. Hector Bossange.*

ADDITION TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Troisième Série. Tome XVIII. Décembre, 1846. 8vo.

Mr. Ord made a donation for the Cabinet of a Model of a Temporary Rudder, invented by Captain Edward Pakenham, and for which the Society instituted at London for the Encouragement of Arts, Manufactures and Commerce, presented their Gold Medal. An account of this invention appears in the Transactions of the said Society, Vol. VII., 1789.

The Committee (Prof. Henry, Dr. Patterson, Mr. M'Culloh,) to whom had been referred the paper of Prof. Norton upon the Imponderable Agents of Nature, reported the following resolution, which was adopted:

Resolved, That it is inexpedient, at this time, to take action upon the Memoir of Prof. Norton, read to the Society on the 4th of December last, and that the same remain in charge of the Committee, awaiting the further communications of the author upon the same subject; subject always, however, to the author's control.

Prof. Tucker made an explanation upon the subject of the paper recently presented by him to the Society.

Prof. M'Culloh read to the Society, the following letter from Mr. Sears C. Walker:—

Washington, D. C. May 3d, 1847.

Dear Sir,—I have just completed Elements V. of the planet Neptune, as follows:—

Perihelion point,	π	=	1°	45′	32″.90	m. eq. Jan. 1, '47.
Node,	Ω	=	129	51	13 .53	„
Inclination,	i	=	1	45	38 .10	

Eccentricity, $e = 0.005052917$
Mean distance, $a = 30.145119$
Epact Jan. 1, 1847, $M = 326° 2' 1''.34$ m. noon Greenwich
M. daily siderial motion, $\mu = 21.437,843$
Period in Trop. years, $T = 165^{y}.51330$

I do not hesitate to pronounce them the most probable elements of the present disturbed orbit of Neptune, that can be deduced from a discussion of all the observations of Neptune extant to this date. These have already accumulated to 479: viz. 113 American and 366 European. All have been compared with an ephemeris which I computed from my IV. Elements of Neptune. Thirteen normal places have been thus obtained, and the corrections of Elements IV. computed from these normal places by the method of least squares. In forming the equations of condition, I carried into effect the plan sketched out in my former letter. The variations of the radius vector were made a function of the ascending powers of the intervals from a date assumed for the origin of time.

The variations of the true anomaly were derived from those of the radius vector, by means of Laplace's formulæ for mechanical quadrations, on the condition that equal areas should be described in equal times. This mode of forming the equations of condition, for the purpose of deducing an orbit from direct observation, is new, as far as I am informed. I send you the comparison of the Ephemeris from Elements V. with the thirteen normal places in geocentric longitude and latitude:

DATE.	Observation less theory.	
	$\Delta\alpha$	$\Delta\delta$
1846, Aug. 9,	— 0″.22	— 0″.72
Sept. 28,	+ 0 .08	+ 0 .37
Oct. 8,	+ 0 .17	+ 0 .28
18,	— 0 .06	+ 0 .09
28,	— 0 .20	— 0 .71
Nov. 7,	— 0 .13	— 0 .42
17,	+ 0 .25	— 0 .27
27,	— 0 .25	— 0 .05
Dec. 7,	— 0 .49	— 0 .08
17,	+ 0 .29	+ 0 .25
27,	+ 0 .14	+ 0 .33
1847, Jan. 16,	+ 0 .35	— 0 .93
April 6,	— 0 .10	+ 0 .65

You will notice that the two elements left indeterminate in my former direct solution II. are now completed. They confirm my former conclusions respecting the smallness of the eccentricity.

They exhibit, moreover, an unexpected coincidence between the perihelion points of Elements III. and V.—thus:

Elements III. $\pi = 0'\ 12'\ 25''.51$ hypothesis of identity with Lalande star.
„ V. $\pi = 1\ 45\ 32\ .90$ deduced from direct observation.

When we consider the difficulty of deducing the perihelion point of an orbit so nearly circular, from an apparent arc of less than two degrees, it must be admitted that the close agreement is *accidental.* Yet we cannot with propriety refuse it some weight in favour of the affirmative of the hypothesis.

You will, doubtless, wish to know what modification the present disturbed elements V. require in order to represent the present path of the planet, and locate it, May 10th, 1795, where the Lalande star (now missing) was observed. I would answer that the node should be increased about 927″, and the inclination one tenth of that amount (92.7″), and the planet should be supposed to have had its average daily orbital motion increased, by the perturbations of the other planets, 0″.02061, during the last fifty-two years. In other words, the actual period must have been oscillating from a value, 165.668, nearer the double of that of Uranus, towards one more remote, viz: 165.513.

Such is the residual quantity to be explained, before pronouncing conclusively on the question of identity. It is probable that it might be reduced in amount, by using intermediate values of the elements modified so as to represent the planet's recent path: but in my examination of the question, I was disposed to borrow nothing from the hypothesis itself towards its confirmation.

The members of the American Philosophical Society must be gratified to learn that one of their number, Prof. Peirce, has, so far as we are informed, anticipated the Europeans in applying Laplace's analysis to the remarkable inequality of $(2\ \mu' - \mu)$ between the motions of Uranus and Neptune. Prof. Peirce has shown under what conditions we must have 0 for the permanent value of $(2\ \mu' - \mu)$, by the same course of reasoning as that by which Laplace demonstrated that we must have the same value for the expression $(2\ \mu - 3\ \mu' + 2\ \mu)$ for the three innermost satellites of Uranus.

The researches of Prof. Peirce generally, on the problem of finding the mathematical planet or planets, that satisfy the residual perturba-

tions of Uranus, will be looked for with much interest. This field of research, though entered with such splendid genius by Leverrier and Adams, it would seem is by no means exhausted.

Yours, truly,
SEARS C. WALKER.

To Robert M. Patterson, M.D.
Vice-President American Philosophical Society.

Dr. Boyè reported verbally, in behalf of himself and Mr. Eckfeldt, to whom had been referred the "*Fixed Mercury*," forwarded by Mr. Sartori, of Leghorn, that upon examination the first specimen proved to be an amalgam of tin and mercury; the second, pure tin; and the third an arseniuret of copper: neither of the latter contained mercury.

The project for the amendment of the Laws, postponed at the last meeting, was called up, and the amendment, as proposed by the Committee, adopted, as follows:—

Chap. I. Sect. 2, *shall be amended to read as follows:*—

"It shall be the duty of the Officers and Council to nominate to the Society, from time to time, such persons as they shall judge worthy of becoming members therein: and any member of the Society may at any meeting nominate, in writing, a candidate for membership; and the nomination so made may, in like manner, be seconded by another member."

Dr. Elwyn presented Vol. IV. No. 36, of the Proceedings of the Society.

Stated Meeting, May 21.

Present, nineteen members.

Dr. Chapman, President, in the Chair.

Letters were received and read:—

From the Literary and Philosophical Society of Manchester, dated Manchester, 9th February, 1847, announcing a donation to the Library of this Society: and,—

From the Proprietors of the Bowditch Library, dated Boston, 1st May, 1847, acknowledging the receipt of Vol. IX. Part 3, of the Transactions of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. February 12, 1847. No. 12. 8vo.—*From the Society.*

Memoirs of the Literary and Philosophical Society of Manchester. Second Series. Vol. VII. Part II. London, 1846. 8vo.—*From the Society.*

The Annals and Magazine of Natural History, including Zoology, Botany, and Geology. Vol. XIX. No. 126. April, 1847. 8vo. *From Sir Wm. Jardine, Bart.*

Topographische Sehets van een gedeelte van Sumatra, door Dr. P. W. Korthals, ridder van de Orde van den Nederl. Leeuw, gewezen Lid der Nat. Commissie in Nederlandsch Oost-Indie, &c. Leyden, 1847. 8vo.—*From the Author.*

Catalogue de Livres Français, Grecs, Latins, Anglais, Espagnols, Orientaux, etc. etc. Premier Supplément. Paris, 1847. 8vo. *From Hector Bossange.*

Reports of the Pennsylvania Hospital for the Insane. By Thomas S. Kirkbride, M.D., Physician to the Institution. Philadelphia, 1846. 8vo.—*From the Author.*

Hybridity in Animals and Plants, considered in reference to the Question of the Unity of the Human Species. By Samuel George Morton, M.D. New Haven, 1847. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

The Edinburgh New Philosophical Journal. Conducted by Professor Jameson. January to April, 1847. No. 84. 8vo.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. Vol. XXX. No. 201. April, 1847. 8vo.

Astronomische Nachrichten. Nos. 590, 591, 592. Altona, March 4th to the 20th. 4to.

Prof. Frazer presented Vol. IV. No. 37, of the Proceedings of the Society.

Stated Meeting, June 18.

Present, fourteen members.

Dr. CHAPMAN, President, in the Chair.

A letter was received and read:—

From the Proprietors of the Bowditch Library, dated Boston, 4th June, 1847, acknowledging the receipt of Vol. IV. Nos. 36 and 37, of the Proceedings of the American Philosophical Society.

The following donations were announced:—

FOR THE LIBRARY.

Journal of the Senate of the United States of America, being the Second Session of the Twenty-eighth Congress, begun and held at the City of Washington, December 2, 1844. Washington, 1844. 8vo.

Journal of the House of Representatives of the United States, being the Second Session of the Twenty-eighth Congress. Washington, 1844–45. 8vo.

Public Documents, printed by order of the Senate of the United States, First Session of the Twenty-eighth Congress. Vol. VII. Washington, 1844. 8vo.

Public Documents, printed by order of the Senate of the United States, Second Session of the Twenty-eighth Congress. Embraced in Eleven Volumes. Vols. I. II. III. VII. VIII. IX. X. in two parts, and XI. Washington, 1845. 8vo.

Executive Documents, Second Session, Twenty-eighth Congress. Vols. I. II. III. IV. in two parts. Washington, 1844–45. 8vo.

Reports of Committees, Second Session, Twenty-eighth Congress. Washington, 1844–45. 8vo. Eighteen Volumes in all.—*From the Department of State.*

The Fourteenth Annual Report of the Royal Cornwall Polytechnic Society. Falmouth, 1846. 8vo.—*From the Society.*

O Auxiliador da Industria Nacional. Periodico da Sociedade Auxiliadora da Industria Nacional, estabelecida no Rio de Janeiro. Vol. I. Nova Serie. Nos. 5, 8, 9, 10. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia.

Vol. III. March and April, 1847. No. 8. 8vo.—*From the Academy.*

Summary of the Transactions of the College of Physicians of Philadelphia. From December, 1846, to April, 1847, inclusive. 8vo. *From the College.*

The African Repository and Colonial Journal. Vol. XXIII. June, 1847. No. 6. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. XIII. June, 1847. No. 6. Whole No. 258. Vol. XLIII. 8vo.—*From Dr. R. M. Patterson.*

The Medical News and Library. Vol. V. June, 1847. No. 54. 8vo.—*From Messrs Lea & Blanchard.*

New Plan of a Perpetual Civil Calendar, Julian and Gregorian, showing by Inspection the correspondence between Monthly dates and the Day of the Week, in any Year before or after the Christian Era. By William M'Ilvaine. Burlington, N. J. 1846. Three Copies.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXIV. Nos. 1 to 12. 4 Janvier au 22 Mars, 1847. 4to.

Annales de Chimie et de Physique. Troisième Série. Tomes XIV. et XV., 1845. Tome XIX., Janvier, Février, Mars, 1847. 8vo.

Histoire Naturelle des Poissons; par M. le Baron Cuvier, et par M. A. Valenciennes. Tomes Dix-huitième et Dix-neuvième. Paris, 1846. 4to. Planches Nos. 487—553, inclusivement.

DONATION TO THE CABINET.

Two Ancient Vases from South America; one from the Island of Puira, and the other from the Island of Payta.—*From the Family of the late J. Milnor Williams, through Mr. Joseph Saxton.*

Dr. Dunglison referred to a letter received by him from Prof. Müller, of Berlin, dated Berlin, 20th April, 1847, in which Prof. Müller stated that he had been much occupied with the bones of the Basilosaurus or Zeuglodon, collected by Mr. Koch in Alabama, on which he designed to publish an extensive treatise. There can be no doubt, he says, that it was a mammiferous animal. Remains of the animal have been

found in the lower tertiary formation of Europe, namely, in the Island of Malta, in Southern France, and in Germany on the Danube. In Malta, the teeth only were found, as long ago as 1670. In Southern France, and Austria on the Danube, parts of the skull were discovered.

Dr. Patterson announced to the Society the confirmation, by the late arrivals from Europe, of Mr. Walker's discovery of the identity of the Lalande star and Neptune, and read to the Society the following letter on this subject from Mr. Walker.

Washington, D. C., June 1st, 1847.

My dear Sir,—I send you my Elements VII. of Neptune, derived from Elements V., by clearing them of the effect of the present disturbing action of the three great planets (that of the others is almost insensible).

The pure elliptic formula—

$$(1.) \quad \ldots \quad \frac{1}{a} = \frac{2}{r} - \frac{r\,r\,n\,n}{k\,k}$$

becomes, in the disturbed orbit,

$$(2.) \quad \ldots \quad \frac{1}{a'} = \frac{2}{r'} - \frac{r'\,r'\,n'\,n'}{k'\,k'}$$

In which the accented quantities are the disturbed values of the elliptic quantities above: k is the Gaussian constant, and k' is a similar quantity for the actual position of all the masses of the system, December 7th, 1847. No. (2) gives, from the values furnished by least squares,—

$$k' = 3545.489 \quad , \quad k = 3548''.188$$
$$a' = 30.17775$$
$$\mu' = k'\,a'^{-\frac{3}{2}} = 21''.41144$$
$$T' = 165^{y}.7175$$

These values of a', μ', and T', substituted for a, μ, and T, in Elements V., give Elements VII., which are a first approximation towards the pure elliptic elements of Neptune. The following comparison of Lalande's observations, as reduced by Mauvais, *Comptes Rendus*, 1847, *No.* 16, will serve as a test of the ephemeris from these Elements. The places are referred to the mean equinox of Jan. 1st, 1847, corrected for parallax, but not for aberration.

Comparison of Lalande's Observations with Ephemeris VII.

Date, 1795. Mean Time, Paris.	Lalande's Two Observations.		Correction of Ephemeris VII.	
	R. A.	Dec.	R. A.	Dec.
h. m. s.				
May 8th, 11 10 57	213° 41′ 3″.89	−11° 35′ 4″.96	+141″.1	+39″.5
May 10th, 11 2 55	213 38 5.16	−11 34 5.64	+147.8	+36.4
Observed two days' motion	− 178″.73	+ 59.″32		
Computed do. Elem'ts VII.	− 185″.42	+ 62.″38		
Discrepancy	6.″69	3.″06		

The small residual discrepancy of 3′ is to be ascribed to the neglect of the perturbations for the interval of 52 years, and to the small errors of Elements VII.

Yours truly and respectfully,

SEARS C. WALKER.

To Dr. R. M. Patterson,

Vice President Am. Phil. Soc.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. IV. JULY—DECEMBER, 1847. No. 39.

Stated Meeting, July 16.

Present, eighteen members.

Dr. CHAPMAN, President, in the Chair.

Professor Procter, a newly elected member, was presented to the President, and having signed the laws, took his seat.

Letters were received and read:—

From the Royal Asiatic Society, dated London, 17th April, 1847, acknowledging the receipt of Vol. IX., Part 3, of the Transactions of the Society, and of Nos. 34 and 35, Vol. IV., of the Proceedings of the Society:—

From the Geological Society of London, dated Somerset House, 29th April, 1847, returning thanks for Vol. IX., Part 3, of the Transactions, and Nos. 34 and 35, of the Proceedings:—

From the Corporation of the University of Cambridge, Mass., dated 16th April and 24th May, 1847, acknowledging the receipt of Nos. 36 and 37, of the Proceedings, and of Vol. IX., Part 3, of the Transactions of this Society:—

From the Royal Bavarian Academy of Sciences, dated 26th April, 1847, announcing donations of books to this Society, and acknowledging the receipt of Dr. Patterson's Early History of the Society, and the Transactions and Proceedings of this Society:—

From the Regents of the University of the State of New York, ex officio Trustees of the State Library, dated Albany, 24th May, 1847, acknowledging the receipt of the Proceedings of this Society:—

From Dr. Pierre Savi, Professor of Botany in the University of Pisa, no date, announcing a donation of books, and asking, on the part of the Librarian of the University of Pisa, for an exchange of books with this Society:—

From W. M'Ilvaine, dated Burlington, N. J., 18th June, 1847, asking the Society's acceptance of cards containing a new plan of a Perpetual Civil Calendar: and,—

From Mr. W. D. Lewis, in relation to the claim which he has on the Society.

The following donations were announced:—

FOR THE LIBRARY.

Real Museo Borbonico. Fascicolo 49, 1840; 50, 51, 1841; 52, 53, 1843; 54, 1844. Naples. 4to.—*From H. M. the King of the Two Sicilies.*

Journal of the Senate of the United States of America: being the First Session of the Twenty-ninth Congress; begun and held at the City of Washington, December 1, 1845, in the Seventieth Year of the Independence of the United States. Washington, 1845–46. 8vo.—*From the Department of State.*

Journal of the House of Representatives of the United States: being the First Session of the Twenty-ninth Congress. Washington, 1845–46. 8vo.—*From the same.*

Senate Documents: Public Documents, printed by order of the Senate of the United States, First Session of the Twenty-ninth Congress. In 9 Volumes. Washington, 1846. 8vo.—*From the same.*

Executive Documents, First Session, Twenty-ninth Congress. In 8 Volumes. Washington, 1845–46. 8vo.—*From the same.*

Reports of Committees, First Session, Twenty-ninth Congress. In 4 Volumes. Washington, 1845–46.—*From the same.*

Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. IX., No. 17, Part 2. Vol. X., Part 2. London, 1847. 8vo.—*From the Society.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. March 12, 1847. No. 13. 8vo.—*From the Society.*

Journal Asiatique, ou Recueil de Mémoires, etc. etc., publié par la Société Asiatique. Quatrième Série. Tome IX. Nos. 40, 41. Janvier, Février, 1847. 8vo.—*From the Society.*

Annali delle Università Toscane. Tomo primo. Pisa, 1846. 8vo. *From the University.*

The African Repository and Colonial Journal. Vol. XXIII. July, 1847. No. 7. 8vo.—*From the American Colonization Society.*

The Annals and Magazine of Natural History. Vol. XIX. No. 127. May, 1847. 8vo.—*From Sir Wm. Jardine, Bart.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. New Series. Vol. XIV. No. 27. July, 1847. 8vo.—*From the Editor.*

The Medical News and Library. Vol. V. July, 1847. No. 55. 8vo. *From Messrs. Lea & Blanchard.*

An Explanation of the Observed Irregularities in the Motion of Uranus, on the Hypothesis of Disturbances caused by a more distant Planet, &c.—*From J. C. Adams, Esq.*

A Treatise on the Practice of Medicine. By George B. Wood, M.D. In Two Volumes. Philadelphia, 1847. 8vo.—*From the Author.*

Proceedings of the General Society of the Cincinnati. With the original Institution of the Order, &c. Published by direction of the State Society of Pennsylvania. Philadelphia, 1847. 8vo.—*From Dr. Thomas M'Euen.*

Catalogue de la Bibliothèque de M. L. (Libri.) Seconde Partie.—8vo.—*From M. Hector Bossange.*

Catalogo Metodico dei Pesci Europei de Carlo L. Principe Bonaparte. Napoli, 1846. 4to.—*From the Author.*

Medical Botany: or Descriptions of the more important Plants used in Medicine, with their History, Properties, and Mode of Administration. By R. Eglesfeld Griffith, M.D. With upwards of 300 Illustrations. Philadelphia, 1847. 8vo.—*From the Author.*

Memoria del Cavaliere Gaetano Savi, Sull'origanum Majorana, origanum creticum e origanum Syriacum. 4to.

Descrizione di una Specie de Elæagnus e di varie altre piante Memorie del Professor Cav. Gaetano Savi. Modena, 1836. 4to.

Elogio del Prof. Gaetano Savi, morto in Pisa il 28 Aprile, 1844; scritto dal socio attuale Signor Marchese Cosimo Ridolfi. Modena, 1845. 4to.

Descrizione della Fimbristylis Cioniana del Dottor Pietro Savi, Professore di Botanica. Pisa, 1843. 8vo.

Sopra la Circolazione dei Liquidi nei Vegetabili considerazioni del Dottor Pietro Savi. 8vo.

Sopra Alcune Acacie Egiziane, Memoria de Prof. Cav. Gaetano Savi. Pisa, 1830. 8vo.

Notizie Storiche della Accademia Valdarnese del Poggio. Pisa, 1839. 8vo.

Memorie Scientifiche della Accademia Valdernese del Poggio. Pisa, 1841. 8vo.—*The foregoing Pamphlets from Professor Pietro Savi.*

Sopra I Carboni Fossili dei Terreni Mioceni delle Maremme Toscane, Memoria del Prof. Cav. Paolo Savi. Pisa, 1843. 8vo.—*From the Author.*

Relazione de' Fenomeni presentati dai Terremoti di Toscana dell' Agosto, 1846, e considerazioni teoretiche sopra i medesimi del Prof. Cav. Paolo Savi. Pisa, 1846. 8vo.—*From the Author.*

Sulla Constituzione Geologica dei Monti Pisani, Memoria del Prof. Cav. Paolo Savi. Pisa, 1846. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Tome XIX. Avril, 1847. Tome XX. Mai, 1847. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXIV. Nos. 13 à 17. 4to.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. No. 202. May, 1847. Vol. XXX. 8vo.

Astronomische Nachrichten. Nos. 593 to 596, inclusive. 4to.

The Committee (Professor Frazer, Dr. Patterson, and Mr. Walker) appointed to examine Mr. Wm. M'Ilvaine's supplement to his Perpetual Calendar, recommended its publication in the Transactions of the Society.

Dr. Patterson announced the death of Professor Thomson, a member of the Society, who died at Frederick, on the 18th June, in the 70th year of his age.

On motion of Dr. Patterson, Professor Henry Reed was requested to prepare an obituary notice of Professor Thomson, which was agreed to.

Prof. Frazer, Reporter, laid before the Society No. 38 of the Proceedings of the Society.

On motion of Dr. Patterson, the communication of Mr. W. D. Lewis was referred to a Committee, consisting of Judge Kane, Col. Biddle and Dr. Chapman.

Pending nomination, No. 197, was read.

The requisite number of qualified voters not being present, the balloting for new members was postponed.

On motion of Mr. Ord, the University of Pisa was admitted among the correspondents of this Society.

Stated Meeting, August 20.

Present, fourteen members.

Dr. Chapman, President, in the Chair.

Letters were announced and read:—

From the Royal Geographical Society of London, dated London, 27th April, 1847, acknowledging the receipt of the Transactions of this Society:—

From the Secretary of the Commonwealth of Massachusetts, dated Boston, 13th July, 1847, offering to present to this Society a copy of the Map of the Commonwealth of Massachusetts, published by authority:—

From Prof. A. D. Bache, dated Thompson's Station, near Gloucester, Mass., 13th August, 1847, on transmitting a communication from Professor Rümker:—

From the Perpetual Secretary of the First Class of the Royal Institute of the Netherlands, in relation to Prizes instituted and to be instituted by that body:—

From Prof. Henry Reed, dated Bordentown, N. J., 13th August, 1847, accepting the duty of preparing an obituary notice of Prof. Thomson:—

From Messrs. Osgood & Co. of New York, dated 24th July, 1847, offering to devote a column of the Literary World to a notice of the Proceedings of this Society: and,—

From Mr. R. A. Tilghman, dated London, August 3d, 1847, accompanying a communication for the Society, and acknowledging the receipt of notice of his election as a member.

The following donations were announced:—

FOR THE LIBRARY.

Inquiries respecting the History, Present Condition and Future Prospects of the Indian Tribes of the United States. 4to.—*From the War Department, Washington.*

The Quarterly Journal of the Geological Society of London. Edited by the Assistant Secretary of the Geological Society. No. 10. May 1, 1847. 8vo.—*From the Geological Society.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. April and May, 1847. Nos. 14 and 15. 8vo.—*From the Society.*

Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the year 1844: under the direction of George Biddell Airy, Esq., M. A., Astronomer Royal. London, 1847. 4to.—*From the Royal Society.*

The Journal of the Royal Geographical Society of London. Vol. XVII. 1847. Part I. 8vo.—*From the Society.*

O Auxiliador da Industria Nacional, Nova Serie. Vol. I. No. 11. Abril de 1847. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. III. May and June, 1847. No. 9. 8vo.—*From the Academy.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIV. No. 259. Third Series. Vol. XIV. July, 1847. No. 1. 8vo.—*From the Institute.*

The African Repository and Colonial Journal. Vol. XXIII. August, 1847. No. 8. 8vo.—*From the American Colonization Society.*

Minutes of the General Assembly of the Presbyterian Church in the United States of America. The concluding part of Vol. XI. A. D. 1847. 8vo.—*From the Clerk of the Assembly.*

Proceedings of the National Medical Conventions, held in New York, May, 1846, and in Philadelphia, May, 1847. 8vo.—*From Dr. Isaac Hays.*

The Medical News and Library. Vol. V. August, 1847. No. 56. 8vo.—*From Messrs. Lea & Blanchard.*

Annual Report of the Regents of the University of the State of New York. Made to the Legislature, April 24, 1847. 8vo.—*From the Regents.*

The American Journal of Science and Arts. Conducted by Prof. B. Silliman and B. Silliman, Jr. and J. D. Dana. Second Series. Vol. IV. July, 1847. No. 10. 8vo.—*From the Editors.*

The Annals and Magazine of Natural History, including Zoology, Botany and Geology. Vol. XVIII. Nos. 121 and 122. Vol. XIX. Nos. 123, 128, 129 and 130. 8vo.—*From Sir William Jardine, Bart.*

Elementare Darstellung der Analyse der Fixstern-Bedeckungen des

Herrn Geheimen Rath Bessel. Von C. Rümker. Hamburg, 1847. 4to.—*From Professor Rümker.*

Agricultural Botany: An Enumeration and Description of Useful Plants and Weeds, which merit the notice or require the attention of American Agriculturists. By William Darlington, M. D. Philadelphia, 1847. 12mo.—*From the Author.*

A Brief Notice of the Life, Researches and Discoveries of Friedrick Wilhelm Bessel. By Sir J. F. W. Herschel.

ADDITIONS TO THE LIBRARY BY PURCHASE.

Scientific Memoirs. Edited by Richard Taylor, F. S. A. Vol. V. Part XVII. May, 1847. 8vo.

The London, Edinburgh, and Dublin Philosophical Magazine. Vol. XXX. Nos. 203, 204 and 205. June and July, 1847. 8vo.

Astronomische Nachrichten. Nos. 597 to 603, inclusive. 4to.

The Edinburgh New Philosophical Journal. Conducted by Professor Jameson. No. 85. April to July, 1847. 8vo.

A communication from Mr. Richard A. Tilghman, on the Decomposing Power of Water at high temperatures, was read and referred to a Committee, consisting of Prof. Frazer, Dr. Bache and Dr. Patterson.

A communication was read from Professor Rümker, containing his latest observations on the planet Astræa, and also his observations on the Comet lately seen.

My dear Sir,—I take the liberty of sending you herewith the second part of my treatise on occultations of fixed stars, with a few copies for distribution.

I take the opportunity of communicating to you my latest observations of the planet Astræa.

1847.	Mean Hamb. Time.	Apt. A. R. of ☿	Apt. Dec. of ☿	Observations.
	h. *m.* *s.*	° ′ ″	° ′ ″	
March 22,	15 1 10.5	241 52 52.7	—13 41 39.4	17
April 11,	15 13 20.0	241 28 43.3	12 41 5.6	19
13,	13 15 45	241 17 8.8	12 34 15.8	30
20,	13 14 49	240 22 6.3	12 7 54.6	10
21,	13 9 23	240 12 41.8	12 4 11.0	19
23,	14 33 43	239 52 13.2	11 56 12.2	14
May 7,	12 10 46	237 3 23.0	11 3 46.3	10
9,	11 55 58.1	236 36 14.8	10 56 59.6	10
10,	12 9 44.1	236 22 15.2	10 53 24.0	18
11,	12 3 23.0	236 8 18.0	10 50 25.8	5
	12 28 0.4	236 8 6.2	10 50 11.8	Mer. Cir.
13,	11 11 53.1	235 40 47.8	10 43 51.0	15
15,	11 7 3.1	235 12 35.5	10 37 40.1	9
16,	12 3 40.7	234 57 52.2		Mer. Cir.
	13 11 13.6	234 57 14.8	10 34 30.1	8
21,	11 39 23.4	233 48 15.1	—10 21 11.0	Mer. Cir.
24,	11 24 53.1	233 7 28.9	10 14 31.4	Mer. Cir.
	12 12 9.9	233 7 12.0	10 14 12.0	7

I join here my observations of the Comet lately seen.

1847.	Mean Time, Hamburg.	Apt. A. R. of ☄	Apt. Dec. of ☄
May 18	11*h.* 4*m.* 46.9*s.*	150° 31′ 0.8″	+39° 20′ 47.1″
19	11 6 44.0	150 29 27.4	39 35 32.3
21	12 50 2.0	150 27 24.4	40 5 50.8
22	12 41 40	150 25 16.6	40 20 30.0

Mr. Niebour, assistant at the Hamburg Observatory, has thence computed:

Perihelion passage, June 18^d.08925 mean Greenwich time.

Longitude of { Perih. 135° 2′ 29″ ; ☊ 173 27 53 } Apt. eq. March 19.

Inclination, 80 36 22

Log. Perih. Dist. 0.3209050

Motion retrograde.

Believe me, dear Sir,

Yours, very faithfully,

C. RÜMKER.

To Prof. A. D. Bache,

Sec of the American Phil. Society.

Mr. M'Culloh made some observations on the application of polarized light to chemical analysis.

After alluding briefly to the discovery of the property of circular polarization in quartz, by M. Arago, and to the subsequent investigation, by M. Biot, of the laws of that phenomenon, as exhibited by certain liquids as well as by quartz, Mr. M'Culloh remarked, that but few analytical chemists seem to have availed themselves of the advantages which circular polarization presents for the extension of chemical knowledge. They appear to have considered its application to practical purposes beset with laborious algebraic calculations, and troublesome manipulations. And some who have only made a few imperfect analysis by this optical method of M. Biot, have even ventured to assert that simpler and quicker methods of attaining the same results are very desirable; while others have doubted the exactness of optical analysis, rather from want of sufficient evidence or information on the subject, than from any positive reason for disbelief.

His attention had been particularly devoted to this subject, in consequence of a very extensive series of chemical researches in relation to the manufacture of sugar, and the chemical nature of the cane and its various products; which researches were made by him under the superintendence of Prof. A. D. Bache, and the direction of the Secretary of the Treasury, in obedience to an act of Congress. In the performance of these researches, he had also been assisted by Mr. Reynolds, an able young chemist of this city. They were designed to obtain information for the use of the government, and indirectly to promote the sugar industry of our country. Several hundred saccharine substances were carefully analyzed; and the processes of manufacture and refining in Cuba and the United States were fully examined. The practical results thus obtained, constitute the subject of a report made to the Secretary of the Treasury, and by him communicated to the Senate at the close of the last session of Congress.

Incidentally, these investigations had served to throw light upon matters of a purely scientific nature; which had, therefore, been omitted, as inappropriate in the report to Congress; but which, for that very reason, were proper subjects for the attention of this Society.

He had referred to his labours thus particularly, that he might justify himself in presuming to pronounce incorrect the opinions of chemists of acknowledged reputation and skill. And he thought

that, after having been constantly occupied, for nearly two years, in making chemical investigations by means of polarized light, he might venture to speak with some confidence upon these matters, without being guilty of immodesty.

With reference to the objection, that the mathematical calculations are troublesome, he observed, that they are perfectly simple, and may be performed by mere arithmetical multiplication, division, &c.; that logarithms facilitate them; and that, by varying only the substance, all other circumstances being constant, the calculations of a series of optical results become as short and as easy as those of quantitative analysis made by the ordinary dry and humid methods with the common balance.

As the result of the experience of Mr. Reynolds and himself, after many hundred analyses, he stated, that five or six independent and complete analyses may be made in a day by a single person, and that by introducing method into all the manipulations, even a larger number may readily be performed. He, therefore, believed that no objection of time can be urged against such analyses; nor would any one familiar with the manipulations of modern analytical chemistry find just cause to complain of those of optical examinations after a few days practice.

Of the accuracy of quantitative determinations by circular polarization, he observed that the theory of the method is based upon rigid mathematical deduction, and is, therefore, perfectly exact; all possible errors are consequently those of observations only. The mean error of reading an angle of rotation, with the apparatus he had employed, does not exceed one-tenth of a degree, which for solutions of sugar corresponds to 0.002, or two-tenths of a per cent. The most exact assays of gold or of silver, by the humid method of Gay Lussac, made by experienced assayers at the mint of the United States, with balances far more delicate than those employed by analytical chemists, are affected with a probable error of 0.0002, plus or minus. Hence optical determinations compare advantageously with the results of ordinary analysis. That such determinations are fully entitled to confidence, is also proved by checking them with other methods, and especially that of applying them to known synthetical mixtures.

In conclusion, Mr. M'Culloh remarked, that he had for some time been prevented, by official and other duties, from completing a series of experimental researches with reference to the effects of temperature upon the phenomena of circular polarization, and also concerning the

nature of the union, whether chemical or mechanical, which takes place when solid substances are dissolved in water, alcohol and other liquids. He hoped, however, to be able to present these investigations in a definite form to the Society before long. And he considered the subject one full of interest and importance, by reason of its intimate connexion with the molecular forces and constitution of matter, and its relation to certain recently discovered electro-dynamical phenomena.

On motion of Dr. Patterson, the Proceedings of the Society for the present year were directed to be sent to the publisher of the Literary World, New York.

Pending nomination, No. 197, and new nominations, Nos. 198—201, were read.

Stated Meeting, September 17.

Present, twenty-three members.

Dr. CHAPMAN, President, in the Chair.

Mr. Townsend, a member of a corresponding society, was introduced.

A letter was received and read:—

From the Royal Bavarian Academy of Sciences, dated Munich, 24th of April, 1847, acknowledging the receipt of Transactions and Proceedings of this Society, and of Dr. Dunglison's Public Discourse on Mr. Du Ponceau.

The following donations were announced:—

FOR THE LIBRARY.

Report of the Sixteenth Meeting of the British Association for the Advancement of Science; held at Southampton, in September, 1846. London, 1847. 8vo.—*From the British Association.*

Abhandlungen der Mathematisch-Physikalischen Classe der Kœniglich Bayerischen Akademie der Wissenschaften. Vierter Band die Abhandlungen von den Jahren 1844-46, enthaltend. München, 1846. 4to.—*From the Royal Academy of Munich.*

Bulletin der Kœnigl. Akademie der Wissenschaften. Nos. 6 to 77, inclusive. 4to.—*From the same.*

Gelehrte Anzeigen, herausgegeben von Mitgliedern der K. Bayer. Akademie der Wissenschaften. Vols. 16 to 23, inclusive, for the Years 1843 to 1846. 4to.—*From the same.*

Almanach der Kœniglich Bayerischen Akademie der Wissenschaften für das Jahr, 1847.—*From the same.*

Die Ueberbleibsel der Altägyptischen Menschenraçe. Eine Abhandlung gelesen in der öffentlichen Sitzung der K. Academie der Wissenschaften zu München am 24 August, 1846. Von Dr. Franz Pruner. München, 1846. 4to.—*From the same.*

Journal Asiatique, ou Recueil de Mémoires, d'Extraits, et de Notices relatifs à l'Histoire, à la Philosophie, aux Langues, etc. etc., des Peuples Orientaux. Quatrième Série. Tome IX. Nos. 42 et 43. Mars et Avril, 1847. 8vo.—*From the Asiatic Society of Paris.*

Annals of the Lyceum of Natural History of New York. Vol. IV. July, 1847. Nos. 10 and 11. 8vo.—*From the Lyceum.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIV. Nos. 260, 261. Third Series. Vol. XIV. August and September, 1847. 8vo.—*From the Institute.*

The Annals and Magazine of Natural History, including Zoology, Botany, and Geology. Vol. XX. No. 131. August, 1847. 8vo. *From Sir Wm. Jardine, Bart.*

The African Repository and Colonial Journal. Vol. XXIII. September, 1847. No. 9. 8vo.—*From the American Colonization Society.*

The Medical News and Library. Vol. V. September, 1847. No. 57. 8vo.—*From Messrs. Lea & Blanchard.*

On Terrestrial Magnetism. By W. A. Norton. From the American Journal of Science and Arts, Vol. IV.—*From the Author.*

On Balances. By Franklin Peale. From the Journal of the Franklin Institute. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Troisième Série. Tome XX. Juin, 1847. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXIV. Nos. 18 à 25. 4to.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Vol. XXXI. No. 206. 8vo.

Astronomische Nachrichten. No. 604. Altona, July 15, 1847. 4to.

The Committee on Mr. R. A. Tilghman's paper, "On the Decomposing Power of Water at High Temperatures," reported, recommending its publication in the Transactions of the Society, which was ordered accordingly.

From the long known fact that solutions of salts, which require a high temperature for dehydration, frequently underwent partial decomposition before this end was effected, Mr. Tilghman was led to believe, that by exposing the salt, even in its anhydrous state, to a high heat, and passing over it a current of aqueous vapour at the same temperature, these salts might be completely decomposed, and perhaps the action observed even in those which had given no signs of partial decomposition under the treatment before alluded to. Upon trying the experiment, it was found that the anhydrous chlorides of calcium, strontium, and barium, could be rapidly decomposed by exposing them, at a high red heat, to a current of steam; hydrochloric acid being copiously evolved, and the oxides of the metals left, the lime remaining anhydrous from the intensity of the heat employed, while the baryta and strontia passed to the state of hydrates.

In these haloid salts, it is to be observed that the addition of the elements of water is absolutely essential to the decomposition; as neither the hydrogen of the acid, nor the oxygen of the base, existed in the anhydrous salt. The action is, therefore, the result of a double decomposition between the steam and the chloride, as well as of the affinity of the liberated acid and base for water. The experiments were then extended to the oxysalts, the sulphates of magnesia, lime, strontia and baryta, which contain, even when anhydrous, all the elements generally considered necessary for the separate existence of the acid and bases of which they are composed. The application of the strongest heat causes no liberation of their acid; but, as with the chlorides, this effect is immediately produced by the passage of a current of steam over them at a high temperature, the baryta and strontia being left in the state of hydrates, and the other bases anhydrous.

The intensity of the affinity between the acid and base of the respective salts, is curiously illustrated by the gradual increase of heat necessary for their decomposition by aqueous vapour. Thus sulphate of magnesia gives off its acid to steam at a low red heat, and consequently a large portion of the acid may be condensed in an undecomposed state.

The sulphate of lime requires a high red heat for its decomposition; and on this account the greater part of its acid is resolved into

sulphurous acid and oxygen gas. The decomposition of the sulphates of strontia and baryta requires progressively higher heats, which, in the case of the last salt, must be raised even to low whiteness.

The subphosphate of lime, as it contains an acid much less volatile than the sulphuric, combined with an excess of a powerful base, which adds to its stability, was selected as one of the most difficult tests of this decomposing power of aqueous vapour. By a full white heat, however, its phosphoric acid was slowly disengaged, and the acid, by its white precipitate with nitrate of silver, showed that the excess of aqueous vapour had not prevented the change which heat is known to produce upon this acid.

It was found, that with the sulphates and muriates of potassa and soda, although the decomposition began freely at a red heat, yet the proportion of alkali set free never exceeded a very small per centage of the residual salt, no matter how long the operation might be continued. This peculiarity being attributed to the volatility of the hydrates of these bases at high temperatures, substances capable of forming non-volatile combinations with the alkalies were mixed with the salts, before subjecting them to the action of the heated steam; the acids were then found to be completely disengaged with facility.

Lime, magnesia, and the subphosphates and subsilicates of lime, baryta, and strontia, produce this effect; and in all these cases the chemical combination is so feeble, that, when cold, the alkali is disengaged by the solvent powers of water alone.

Alumina, which possesses so much of the acid character with respect to the strong bases, is proportionally more efficient than any of the preceding substances in aiding the decomposition of the alkaline salts; it remains in combination with the alkali, when cold, as a soluble aluminate, but is easily precipitated by a current of carbonic acid gas. The fact, long since noticed by Berthier, that the mixture of alumina and sulphate of potassa, formed by the calcination of potash-alum, is converted by heat into aluminate of potassa, was shown to depend, probably, upon the presence of aqueous vapour. When the experiment was repeated, and the presence of this vapour carefully avoided, no decomposition of the sulphate of potassa took place; but by the contact of the vapour produced by the combustion of the fuel or otherwise, even in small quantity, and at much lower temperatures, the decomposition is produced rapidly.

The powerful action of aqueous vapour upon anhydrous alum, at a high temperature, suggested the possibility that a similar action might take place upon its mineral representative—feldspar. Steam

was therefore passed slowly, for some time, over small fragments of highly heated feldspar. Beyond parted fusion, no other visible change than a considerable degree of vesicularity in the parts most exposed was produced; but when the fragments were finely pulverized and boiled in water, the concentrated solution was strongly alkaline, and proved, by the usual tests, to consist of aluminate of potassa; and after water ceases to extract this salt from the powdered mineral, dilute sulphuric acid will produce from the residue a small proportion of alum. It is worthy of remark, that although the contact of the steam in this experiment is confined to the mere surface of the small fragments of feldspar, yet the chemical decomposition produced by it is not confined to that surface, but spreads by a "cementation action" through their entire mass; pulverization is therefore required to obtain evidence of the internal change which has been produced.

All the experiments so far made, would indicate that the following was the general rule applicable to all salts capable of sustaining heat alone without decomposition.

Whenever a salt, from its own elements alone, or by the addition of those of water, can produce a volatile acid and a fixed base, the evolution of this acid and the liberation of this base will be determined by passing a current of aqueous vapour over the salt, raised to a high temperature. When either the acid or the base to be liberated forms a combination with water, which can resist decomposition by the heat employed, the tendency to form such hydrates adds much to the decomposing power of the aqueous vapour. Although potash and soda are not, by themselves, fixed bases at high temperatures, yet, by the use of the substances before mentioned, they can form combinations which are fixed, and by this means these salts come under the above rule.

The actual number of salts which have been as yet subjected to this mode of decomposition is not very large; yet from their perfect analogy of composition with many others, there can be but little doubt of the general extension of the principle.

The applicability of this simple mode of decomposition to the explanation of a great variety of geological changes, is too evident to escape the attention of those conversant with that science. The author expresses the hope to be able, in a future paper, to give a more complete account of some interesting facts which have been observed in connexion with this subject, and to verify, by experiment, many points which must at present be left to inference and conjecture.

Mr. Ord announced the death of Dr. George M. Zecchinelli, of Padua, a member of this Society.

Mr. G. W. Smith stated that the singing mouse, which was discovered some weeks ago in the Northern Liberties, county of Philadelphia, was in the Librarian's room, and invited the members to listen to it after the adjournment of the Society. There does not appear to be any difference of external form between this and the common mouse.

Prof. Haldeman exhibited a specimen of a spider (lycosa scutulata), from which, when stuck with a pin, and in the act of dying, a parasitic worm of the genus Filaria, three times the length of the spider, proceeded.

Pending nominations, Nos. 197 to 201, inclusive, were read.

On motion of Prof. Frazer, permission was granted to the brother of Mr. Richard A. Tilghman to make a copy of the paper upon the decomposing power of water at a high temperature, for his own private use.

On motion of Mr. Ord, the Franklin Institute of Philadelphia was put upon the list of exchanges of this Society.

Stated Meeting, October 1.

Present, twenty-five members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were received and read:—

From the Literary and Philosophical Society of Manchester, England, dated Manchester, 3d August, 1847, acknowledging the receipt of the Transactions of this Society: and,—

From Baron Von Hammer Purgstall, dated Vienna, 19th March, 1847, acknowledging the receipt of the Proceedings of this Society, and announcing a donation.

The following donations were announced:—

FOR THE LIBRARY.

Journal Asiatique, ou Recueil de Mémoires, d'Extraits et de Notices relatifs à l'Histoire des Peuples Orientaux, etc. etc. Quatrième

Série. Tome IX. No. 44. Mai, 1847. 8vo.—*From the Asiatic Society of Paris.*

The American Journal of Science and Arts. Conducted by Prof. Silliman and B. Silliman, Jr. and J. D. Dana. Vol. IV. No. 11. Sept. 1847. 8vo.—*From the Editors.*

Jahrbücher der Literatur. Hundert dreizehnter Band. January to December, 1846. Nos. 113 to 116, inclusive. Wien. 8vo.—*From Baron Von Hammer Purgstall.*

An Essay, Literary and Practical, on Inversio Uteri. By John Green Crosse, M.D., F.R.S. Part the Second. London, 1847. 8vo.—*From the Author.*

Chemistry applied to the Manufacture of Soap and Candles. By Campbell Morfit. Philadelphia, 1847. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. Vol. XXXI. No. 207. Sept. 1847. 8vo.

Annales de Chimie et de Physique. Troisième Série. Tome XX. Juillet et Août, 1847. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences; par MM. les Secrétaires perpétuels. Tome XXIV. No. 26. 28 Juin, 1847. Tome XXV. Nos. 1 à 4. 5 Juillet au 26 Juillet, 1847. 4to. Tables, deuxième Semestre. 1846. Tome XXIII.

Mr. Haldeman exhibited specimens of engravings of shells on steel, intended for the publication of the results of the Geological Survey of New York. He stated that the expense was only two-fifths of similar plates on stone a few years ago.

Pending nominations, from Nos. 197 to 201 inclusive, and new nomination, 202, were read.

Stated Meeting, October 15.

Present, nineteen members.

Dr. CHAPMAN, President, in the Chair.

A letter was received and read:—

From Dr. Nürnberger, dated Nürnberg, 1st May, 1847, accompanying a donation to the Library.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the American Academy of Arts and Sciences. Jan. 27th to May 25th, 1847. Boston. 8vo.—*From the Academy.*

The African Repository and Colonial Journal. Vol. XXIII. Oct. 1847. No. 10. 8vo.—*From the American Colonization Society.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. New Series. Vol. XIV. No. 28. October, 1847. 8vo.—*From the Editor.*

The Medical News and Library. Vol. V. October, 1847. No. 58. 8vo.—*From Messrs. Lea & Blanchard.*

North American Herpetology; or, A Description of the Reptiles inhabiting the United States. By John Edwards Holbrook, M.D. Philadelphia, 1842. 5 Vols. 4to.—*From the Author.*

Memoir on the Fossil Genus Basilosaurus; with a notice of Specimens from the Eocene Green-sand of South Carolina. By Robt. M. Gibbes, M.D. Philadelphia, 1847. 4to.—*From the Author.*

Grundzüge der neueren Astronomischen Beobachtungs-Kunst. Entworfen von Dr. C. T. Anger. Danzig, 1847. 4to.—*From the Author.*

Populáres Astronomisches Hand-Wörterbuch. Von Dr. Joseph Emil Nürnberger. Zwölftes und dreizehntes Heft, L.—M. Kempten, 1846. 8vo.—*From the Author.*

On motion of Dr. Boyé, Dr. Boyé, Mr. Peale, and Dr. Bethune, were appointed a Committee to examine into the phenomena presented by the singing mouse, which was recently brought before the Society.

Dr. Bethune made some remarks on ethnology, a term he preferred to ethnography.

It has generally been assumed that civilization was the result of a people's emergence by their own force and gradually from a barbarous state. This view is taken by various writers, especially the French, on the *contrat social*, and has become the popular notion. Dr. Bethune affirmed that all history taught the contrary. We have no established instance of a nation emerging from barbarism by its own force, but always where such a change has occurred in the condition of a people, it received the *graft* of civilization from another; and there never has been a time when civilization did not exist some-

where, though often changing its place. He considered this as a proof that civilization is the natural state of man, and must have been his original state, or the state which he derived from God.

Dr. Bethune also considered that nations were distinctly characterised by their moral peculiarities, and especially by the superstitions prevalent among them. Every form of superstition is of very remote origin, and the several classes can be traced backward through successive periods to a common source; the form prevalent among any nation marking the period when it broke off from the main stem. Thus the northern Indians of America (if their faith be properly ascertained), are the only savage people known to us who worship a pure Spirit as God; and hence they must be the oldest, having left the main family before idolatry became prevalent. *Fire* being originally the sign of the divine Presence, the worship of fire as a representative of Diety was the *earliest* form of idolatry, and marks a people among whom it prevails as very ancient in their separation. Angels in the visible shape of supernatural man, being employed by the invisible God as his messengers, gave rise to the *second* form of idolatry, that of *images* resembling man, though variously exaggerated, according to the taste of the people. The *third* form was the result of more philosophical refinement, being the worship of emblems, representing the various providence of the Divine Being; as the ox in agriculture; the trident or fish-spear for maritime affairs, &c. Next to the emblematic came the *symbolical;* as the egg, the serpent-circle, &c. This was carried to the highest pitch in the *Bacchic* mysteries, where, under forms revolting to modern refinement, the most subtle doctrines were concealed. It is remarkable that wherever history (other than sacred) leads us, we find traces of the Bacchic or Phallic superstition, from India to ultima Thule; from the date of the Shastres down to the present time.

Dr. Bethune inferred from this that the superstitions and *traditionary* moral notions of a people, should be studied as much as the form of their heads or the radical of their language, to discover their origin. The bale (or Baal) fires still lighted in Ireland, and the image of the sun on the ruined temples of the Mexicans, mark an original consanguinity of the long separated nations. So, distinct traces of the Phallic worship (as late as the middle of the last century), prove the source from which Marseilles was colonized, *after* that mysticism had been invented by the Egyptian hierophants.

All these considerations, leading us backward to a unity or common origin of the race, as well as to a state of high morals and civi-

lization, Dr. Bethune thought, went to confirm the Mosaic history. He also referred to the reasoning in the first chapter of the epistle to the Romans, to show that his view was that taken by the apostle Paul. He also hoped to investigate the subject farther and communicate the result in form.

Pending nominations, from No. 197 to 202, were read.

The requisite number of qualified voters not being present, the balloting for members was postponed.

Stated Meeting, November 5.

Present, twenty-two members.

Dr. CHAPMAN, President, in the Chair.

Letters were received and read:—

From the President of the Corporation of the University in Cambridge, Mass., dated Harvard College, Cambridge, 28th July, 1847, acknowledging the receipt of the Proceedings of this Society:—and,

From His Excellency George Bancroft, dated U. S. Legation, London, 4th October, 1847, announcing a donation to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Royal Society of Edinburgh. Vol. XVI. Part III. Edinburgh, 1847. 4to.—*From the Society.*

Transactions of the Royal Society of Edinburgh. Vol. XVII. Part II. Containing the Makerstoun Magnetical and Meteorological Observations for 1843. Edinburgh, 1847. 4to.—*From the same.*

Proceedings of the Royal Society of Edinburgh. Vol. II. Nos. 29 and 30. 1846–47. 8vo.—*From the same.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. June 11, 1847. No. 16. 8vo.—*From the Society.*

The Quarterly Journal of the Geological Society of London. Edited by the Assistant Secretary. No. 11. August 1st, 1847. 8vo.—*From the Society.*

The African Repository and Colonial Journal. Vol. XXIII. November, 1847. No. 11. 8vo.—*From the American Colonization Society.*

The Annals and Magazine of Natural History, including Zoology, Botany, and Geology. Vol. XX. Sept. 1847. No. 132. 8vo. *From Sir Wm. Jardine, Bart.*

Twenty-ninth Congress, 1st Session, House of Representatives. War Department. Document, No. 211. Letter from the Secretary of War, relative to the Mineral Lands on Lake Superior, accompanied with a Map. 8vo.—*From the Hon. G. M. Dallas.*

An Attempt to Discover some of the Laws which govern Animal Torpidity and Hibernation. By Peter A. Browne, LL.D. 8vo.

ADDITIONS TO THE LIBRARY BY PURCHASE.

Astronomische Nachrichten. Nos. 605, 606, 607, 608 and 609. 4to.

Dr. Patterson read a letter from A. D. Bache, LL.D., dated U. S. Coast Survey Station, near Berwick, on the subject of a certain method of determining the sun's parallax, proposed by Dr. Gerling of Masburg, and the memorial by Lieut. Gillis upon the subject.

And upon motion, the papers upon the subject were referred to a Committee, consisting of Dr. Patterson, Mr. M'Culloh, and Prof. Kendall.

Pending nominations, from No. 197 to 202, were read.

Mr. Ord moved the adoption of a substitute for chapter 1, section 10, of the Laws of the Society.

The subject was, according to the Laws of the Society, laid over until the next stated meeting.

And on motion of Judge Kane, the Librarian was requested to give notice that the enacting of laws will be part of the business of that meeting.

On motion of Judge Kane, Mr. F. Peale, one of the Curators, was authorized to withdraw from the cabinet, for a period not exceeding ten days, the manuscript of the Declaration of Independence, the Jefferson Chair, and the portrait of Mr. Jefferson, for the purpose of placing them for that time in the collection about to be opened for exhibition at the hall of the Musical Fund Society, for the benefit of the society.

On motion of Mr. G. Washington Smith, the Librarian, and Curator, Mr. Peale, were authorized to take measures for the preservation of the MSS. of the Declaration of Independence.

Stated Meeting, November 19.

Present, twenty-three members.

Dr. CHAPMAN, President, in the Chair.

A letter was received and read:—

From the Perpetual Secretary of the Royal Academy of Sciences and Belles-Lettres of Brussels, dated Brussels, 8th October, 1847, acknowledging the receipt of the Proceedings and Transactions of this Society.

The following donations were announced:—

FOR THE LIBRARY.

The American Journal of Science and Arts. Second Series. No. 12. November, 1847. 8vo.—*From the Editors.*

The Annals and Magazine of Natural History, including Zoology, Botany, and Geology. Vol. XX. No. 133. October, 1847. 8vo.—*From Sir Wm. Jardine, Bart.*

The Medical News and Library. Vol. V. November, 1847. No. 59. 8vo.—*From Messrs. Lea & Blanchard.*

An Address delivered before the Chester County Horticultural Society, at West Chester, Pa. September 10, 1847. By Wm. H. Dillingham. 8vo.—*From the Chester County Horticultural Society.*

Address delivered at the opening of the New Hall of the Athenæum of Philadelphia, on Monday, October 18, 1847. By Thomas I. Wharton, Esq. 8vo.—*From the Author.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. No. 208. October, 1847. 8vo.

The Edinburgh New Philosophical Journal. Conducted by Prof. Jameson. No. 86. Vol. XLIII. April—October, 1847. 8vo.
Astronomische Nachrichten. Nos. 610 and 611. 4to.

Dr. Franklin Bache announced the death of the Hon. Alexander Everett, a member of this Society, on the 29th of June last.

A letter was read from Richard Owen, Esq. to the Hon. Edward Everett, President of the University of Cambridge, Mass., containing some remarks upon Dr. Meigs' paper on the generation of Didelphis Virginiana, and expressed his desire to obtain a specimen of a gravid female of this species for the Hunterian Museum.

Dr. Meigs made some remarks upon this letter, defending his belief that the young opossum is developed from a placenta.

Dr. Dunglison made some remarks upon the same subject, agreeing with Prof. Owen.

Prof. Frazer read an extract from a letter of Prof. Mitchell, of Cincinnati, stating that he believed he had obtained two positions of Lassel's satellite of Neptune, nearly 180° apart, and with an interval of about six days.

Pending nominations, from No. 197 to 202, were read.

Mr. Ord called for the consideration of the by-laws prepared by him at the last meeting, which being ordered, the substitute offered by him in place of chapter I., section X. of the Laws of the Society, was unanimously adopted, (twenty-three members voting in the affirmative,) as follows, viz:—

"Such members as reside within ten miles of the Hall of the Society, and such others as desire to vote at the meetings and elections, shall pay an admission fee of ten dollars; and annually thereafter, on the first Friday of January, a contribution of ten dollars; but should the annual contribution be not paid on or before the third Friday in July, then shall ten per centum be added to the same for each and every year that it shall remain unpaid."

Stated Meeting, December 3.

A. D. Bache, LL.D., Vice-President, in the Chair.

Present, thirty-four members.

Dr. Bache introduced Major Sanders, of the corps of Engineers, to the presiding officer.

Letters were received and read:—

From the Royal Academy of Sciences of Berlin, dated 26th July, 1847, and 15th August, 1847, announcing a donation to the Society, and acknowledging the receipt of Proceedings and Transactions of the Society: and,—

From the Royal Institute of Sciences, Belles-Lettres and Arts of the Low Countries, dated Amsterdam, 24th August, 1847, acknowledging the receipt of Transactions and Proceedings of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Nouveaux Mémoires de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Tome XIX. 1845. Tome XX. 1847. 4to.—*From the Academy.*

Mémoires Couronnés et Mémoires des Savants Étrangers, publiés par l'Aeadémie Royale des Seiences, des Lettres et des Beaux-Arts de Belgique. Tome XIX. 1845 and 1846. Tome XX. Tome XXI. 1846. 4to.—*From the same.*

Bulletins de l'Aeadémie Royale des Sciences et Belles-Lettres de Bruxelles. Tome XII. 2me Partie. 1845. Tome XIII, en deux Parties. 1846. Tome XIV. 1re Partie. 1847. 8vo.—*From the same.*

Annuaire de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique. Douzième Année, 1846. Treizième Année, 1847. 12mo.—*From the same.*

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1845.—*From the Academy.*

Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin. July to December, 1846. January to June, 1847. 8vo.—*From the same.*

Annales de l'Observatoire Royal de Bruxelles, publiées aux frais de l'État, par le Directeur, A. Quetelet. Tome V. 4to.—*From the Director, A. Quetelet.*

Annuaire de l'Observatoire Royal, par le Directeur, A Quetelet. 1846 et 1847. 18mo.—*From the same.*

Boletin de la Sociedad Economica de Valencia. Año 8°. Tomo 4°. Julio, Marzo, 1847. 8vo.—*From the Society.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIV. Nos. 262, 263. Third Series. Vol. XIV. Oct., Nov., 1847. No. 11. 8vo.—*From the Institute.*

Proceedings of the Historical Society of Pennsylvania. Vol. I. June, 1847. 8vo.—*From the Society.*

Observations des Phénomènes Périodiques. Par A. Quetelet. Extracted from the 19th and 20th volumes of the Brussels Academy. 4to.—*From the Author.*

De l'Influence du Libre Arbitre de l'Homme sur les Faits Sociaux, et particulièrement sur le nombre des Mariages. Par M. A. Quetelet. Extrait du Tome III. du Bulletin de la Commission centrale de Statistique. 4to.—*From the Author.*

Sur les Anciens Recensements de la Population Belge. Par M. A. Quetelet. Extrait du Tome III. du Bulletin de la Commission centrale de Statistique de Belgique. 4to.—*From the Author.*

Enquête sur le Travail et la Condition Physique et Morale des Ouvriers employés dans les Manufactures de Coton, à Gand. Par M. M. J. Mareska, et J. Heyman. 8vo.—*From M. Quetelet.*

Mémoire sur les Étoiles Filantes, ainsi que sur les Météores en général, par rapport à leurs causes déterminantes. Par Thomas Ignace Marie Forster. 8vo.—*From M. Quetelet.*

Chronicles of the First Planters of the Colony of Massachusetts Bay, from 1623 to 1636. Now first collected from original Records and contemporaneous Manuscripts, and illustrated with Notes. By Alexander Young. Boston, 1846. 8vo.—*From the Author.*

Chronicles of the Pilgrim Fathers of the Colony of Plymouth, from 1602 to 1625. Now first collected from original Records and contemporaneous printed Documents, and illustrated with Notes. By Alexander Young. Second Edition. Boston, 1844. 8vo.—*From the Author.*

Revolutionary Services and Civil Life of General William Hull; prepared from his Manuscripts, by his Daughter, Mrs. Maria Campbell. Together with the History of the Campaign of 1812,

and Surrender of the Post of Detroit; by his Grandson, James Freeman Clarke, New York. 1848. 8vo.—*From the Editor.*

The Medical News and Library. Vol. V. Dec. 1847. No. 60. 8vo.—*From Messrs. Lea & Blanchard.*

Report of the Organization Committee of the Smithsonian Institution. Report of the Board of Regents, submitted to Congress, of the Operations, Expenditures, and Condition of the Smithsonian Institution.—*From T. R. Peale, Esq.*

Professor Henry presented a communication from Mr. T. Allen, entitled "An account of the inflammable Gas-wells on the banks of the Kanawha river, in Virginia, as they appeared in June, 1847," which was read by the Secretary.

Mr. Allen states that the term "gas-well" is applied in that part of the country to designate certain borings or artesian wells, made to the depth of from 1000 to 1800 feet, for the purpose of procuring stronger brine than that nearer the surface, from which escape, together with the brine, large quantities of carburetted hydrogen gas, which is applied as a fuel in the process of manufacturing the salt. The boring is about 3 inches in diameter, and is fitted with a copper-pipe, from the top of which the mingled gas and liquid, forced upward by the pressure at the bottom of the well, are conveyed through wooden-pipes to a square cistern of planks, supported at a height of 10 to 12 feet above the level of the soil, for the purpose of obtaining a head for distributing the liquid to the evaporating pans. In this cistern is placed a gas-holder, made of a portion of the trunk of a hollow sycamore (buttonwood) tree, closed above by a plank top, and open below, beneath which the conducting pipe terminates. The gas and liquid at once separate, and while the latter is conducted to the salt-pans, the former accumulates in the gas-holder, and is conveyed through a wooden pipe from its top to the furnace chamber, where it is distributed through iron-tubes inserted in the masonry. The furnace chamber is about 100 feet in length, and 5 or 6 feet wide, furnished below with an ordinary grating to admit air, (the supply of which is regulated by flat stones covering more or less of the openings), and closed above by the bottoms of the cast iron salt-pans. The gas being specifically lighter than the air, rises and occupies the upper portion of the chamber in contact with the pans, but burns only at its lower surface where it is in contact with the air; thus furnishing a sheet of flame suspended midway of the height of the cham-

ber. The evaporating pans are fitted with wooden covers, and the vapour escaping from them is conducted through pipes passing through the cisterns before spoken of, and by its condensation furnishes a large quantity of perfectly soft water. The excess of the gas is used as fuel under the boiler of a steam engine employed in boring another well, and for the purposes of lighting up the establishment at night.

In the works from which the description was taken, 450 bushels of good merchantable salt are made daily, and can be sold at 18 cents per bushel. It is not every brine-well, however, which furnishes the gas; nor is the supply unlimited, since the first gas-well has entirely given out. The temperature of the water from all these wells is the same as that of the coldest spring water, which contrasts singularly with the phenomena found in corresponding borings in Europe, such as the well at Grenelle, the temperature of whose water is 85°, and the observed increment below the point of constant temperature, 1° for every 50 feet.

Mr. Allen attributes the rise of the water to the hydrostatic pressure in subterranean currents extending from the tops of the surrounding mountains; the gas he supposes to be developed during the conversion of the bituminous coal (with which the region abounds) into coke, graphite and anthracite; the coldness of the water he attributes to the solution of the salt. The borings are through soft, crumbling sandstone, into which the drills penetrate easily and perforate a channel like a tube of stone. They are usually 2¾ or 3 inches diameter, and to prevent the infiltration of the upper weaker brine, are lined with a copper tube of about 2 inches diameter, made continuous by being tightly united by screw-joints of cast brass, and with a strip of leather around the lower end to make the tube fit tight to the bore of the drill hole. The contract price for boring to the depth of 1000 feet, is $2.50 per foot, the necessary steam-power being furnished, and six months allowed to execute the work.

The drilling apparatus consists of "auger-rods," as they are termed, made of round pieces of oak of about 2 inches diameter, and often 20 feet long, the sections being united by iron screw-joints. The bottom sections of the auger-rods are made of iron, terminated with a steel drill, this heavy metal being used to cause the descent of the wooden rods in the water that usually fills the drill-hole. The lower iron rods are for this reason called by the workmen "sinkers."

The lowest steel-pointed section of the auger-rod is formed with an open slit at the end of its junction with the section next above it, in-

stead of being connected by a fast screw-joint. This contrivance allows of the descent of the great length of several hundred feet of the auger-rod, without expending its whole momentum upon the drill, which is thus always allowed to fall with the uniform force of its own weight alone, there being sufficient scope in the length of the slit to allow the weight of the auger-rod to become arrested by the elastic rope employed to lift and drop it, to produce the desired churning movement.

Professor Bache left the chair, which was taken by Dr. Patterson.

Professor Bache then communicated a description of a base apparatus, planned by him and executed by Mr. Wm. Wardeman, mechanician of the coast survey.

The base apparatus presented some novel feature in construction, the adaptation of others not hitherto used in field work, and a choice of parts previously used by others. The general plan was devised by me, and the details by Mr. William Wardeman, mechanician of the coast survey, by whom they were executed under my direction. The following are the general features of the apparatus. 1. The measuring bars were upon the compensating system first used, I believe, by Col. Colby in Great Britain, and by Mr. Borden in the United States, but the mode of obtaining the compensation differed entirely from that used by either of these gentlemen. 2. A principle was introduced in reference to the dimensions of the bars which, if at all recognised, has not been hitherto applied. A bar of brass and a bar of iron of the same dimensions, exposed to the same source of heat, will not heat equally in equal times; this is well known to depend upon the different conducting powers of the two metals, their different specific heats, and the different powers of their surfaces to absorb heat. The bars then, if of equal sections, when the temperature is rising or falling, have not the same temperature, and the system is not compensating. The surfaces are easily made to absorb equally by the same coating, and the sections must be so proportioned to each other that the bars will have the same temperature when exposed to variable temperatures of the atmosphere and of the case containing them. Having arranged the sections approximately, using numbers taken from the books, the change, in length, during increase or decrease of temperature, were not perceived when microscopes were used supported upon wooden stands, or even upon stone blocks of small size; the means of measurement were not sufficiently delicate to perceive

them, or they were masked by greater changes in the supports. When the level of contact was substituted for the microscopes, or when Mr. Saxton's reflecting pyrometer was employed, these changes became very perceptible, and it was necessary to resort to direct experiment upon the materials of the bars themselves to obtain even approximate results, and then to correct a small residual quantity by applying a covering more absorbent of heat to one bar than to the other. If such changes have not been perceived hitherto, it has been because adequate means were not used to detect them. 3. The lever of contact and level, first used, I believe, in the adjustment of standard measures by Bessel, was applied to indicate the lengths of the bars. The levels were so delicate, that several divisions upon them made up a quantity entirely insignificant in the measurement. The doubt which I had was whether the sensibility of the apparatus had not been carried too far; this was, however, entirely removed upon finding the rapidity and certainty with which it could be used. The contact between two adjacent measures was between a blunt knife edge and a plane of agate. 4. The trussed support for the bars adapted to bearing the apparatus at two points only, and the tin covering or tube which surrounded the whole, were similar to those used by Mr. Borden, but differed entirely in the adaptation of them; the bars moved freely on the trussed frame upon rollers, and were not attached to the covering tube in which the trussed frame itself was merely supported. The tin covering was conical and was doubled. 5. The tressles admitted of the various motions required in placing the apparatus, and the length of the whole about twenty feet, (six metres), gave a weight which permitted easy and rapid transfer by four men, when covered with several thicknesses of imperfectly conducting material to keep the fluctuations of temperature within moderate limits. The contacts were usually made in much less time than the setting of the forward tressles for the measure. The following statistics of the measurement of a base line on Dauphin Island, at the entrance to Mobile bay, with this apparatus, will suffice for the present to show that we have obtained a useful auxiliary in a geodetic survey, especially when the difficulties of triangulation render advisable the measurement of frequent bases. The greatest length measured in the course of a day, in the final measurement, was one hundred and eighty-three tubes, equal to nearly seven-tenths of a mile; the least forty-seven, or one-quarter of a mile; the average one hundred and four tubes, or four-tenths of a mile. The whole measurement of nearly seven miles was completed in seventeen

working days, not reckoning the time lost by bad weather, or occupied by change of camp, and by comparisons of the apparatus. The length of the apparatus was compared, before and after the final measurement, with a standard iron bar with which it had been compared in the Coast Survey office, by using Mr. Saxton's reflecting pyrometer.

The accuracy with which a remeasurement of considerable length could be made was tested more than once in the measurement, but it was determined to make a more complete direct trial by establishing intermediate marks, and noting by the microtelescopes attached to the ends of the bars the deviation at intervals. The greatest deviation in the length of seventeen tubes was between one and two-hundredths of an inch, the average in cases of repetition, not regarding signs, was five one-thousandths of an inch, the final error at the end of the one-third of a mile remeasured was nothing. The probable error of remeasuring one hundred and twelve yards was less than five ten-thousandths of an inch, making on the whole length of the base, and supposing all the errors to fall in the same direction, which is physically most improbable, less than nine-tenths of an inch. The great practical difficulty found at the outset was to obtain a mark which would stand unmoved in the sand to which to refer the apparatus on recommencing a measurement; this was satisfactorily obviated after many experiments, and the marks which I have just stated to have been placed at intervals may be assumed generally to have been stationary from one measurement to another. Incidentally, this remeasurement gave a strong test of the perfect compensation of the apparatus under sudden changes of temperature, as well as for different stationary temperatures. A storm came up after the second measurement was commenced, which interrupted it for between one and two hours, and cooled the air suddenly about four degrees. The second measurement was therefore made at a lower temperature by some degrees than the first, and under expcsure to a sudden fall of temperature.

The chair having again been taken by Prof. Bache,—

Professor Henry made a communication relative to some observations on the Aurora Borealis, with the object of determining the height of the meteor. The result of the observations tended to establish the fact, that the arch of the aurora, like the rainbow, is a local phenomenon, each observer seeing a different object.

Professor Bache submitted to the Society, certain charts of the progress of the survey under his superintendence.

Dr. F. Bache reported the decease of Mr. James Ross, of Pittsburg, a member of this Society, who died on the 27th of November, 1847.

The Treasurer presented to the Society his annual report on the state of its funds.

The Committee of Publication made their annual report.

Pending nominations, from No. 197 to 202, were read.

The following communication was received by the Secretary previous to the meeting, but accidentally omitted; which being represented to the Society, they, by resolution of January, 1848, directed the paper to be inserted in the proceedings of the meeting at which it should have been read.

Corrections and Additions to his paper on the Longicornia of the United States, by S. S. Haldeman.

Since the year 1844, in which the greater portion of the former paper was prepared, a number of doubtful points have been solved, species detected, and errors discovered, which it was not practicable to insert during the publication, but which are now presented that they may bear the date of the original article, at least as far as the year is concerned. The original numbers are employed, and continued after 284, for the additional species cited.

2, 6. Orthosoma cilipes *Say*, is a Mallodon, of which M. simplicicolle is a synonym. Cab. Le Conte.

17. *For* solitarius *read* solitarium.

21. Cerasphorus quadrispinosus = rusticus *F.* 2, 311. Oliv. 69 tab. 2.16, the locality of Fabr. being incorrect. Chion *Newm.*, takes precedence of Cerasphorus.

22. Enaphalodes leconteï ⸸ *Dej.* is correctly referred. The genus scarcely differs from Elaphidion. The inverted mark ⸸ is used to indicate an uncharacterised name, and ‡ (See No. 85) to signify *in error*. Both are to be placed *between* the name and the authority, thus *separating* what do not properly belong together. With these, two vertical lines may indicate a name improperly employed for the second time, as Heteroscelis ‖ *Dupont*, which is Campylocnemis *Ww.*, there being another genus previously named Heteroscelis. See No. 319.

25. *For* Elaphidion aspersum, *read* incertum *Nm.*

26. *For* E. truncatum *read* inerme *Nm.*

27. *For* muriaticus *read* muticus.

33. Elaphidion bidens *F.* *Add* E. spinicorne *Nm.*

39. *Dele* var. brunneum. Most dark coloured species are paler when immature.

43. Hylotrupes baiulus *Lin.* occurs from Mass. to Car.

44. Arhopalus fulminans *F.* Hab. Mass. to Alab. Wiskonsin.

46. Callidium cyanellum ⸸ *Dej.* has been described by Newman as *antennatum.* Ent. mag. 5,393.

56. Tetropium *Kb.* (1838) Fauna Bor. am. 174, pl. 5, fig. 8.= Criomorphus *Muls.* (1839) Coleop. de France.=Isarthron ⸸ *Dej.*

59. Smodicum cucuiiforme *S.* Callid. cylindroides *Nm.* Ent. mag. 5,394, is a synonym.

61. Stenosphenus notatus *O.* *Add* deflendum *Nm.* (Elaphid.)

73. Clytus luscus *F.* *Add* humeralis *Nm.* Ent. mag. 5,394.

77. *For* Clytus vespoides *read* C. marginicollis *Lap.*

80. Clytus caprea *Say.* *Add* elevatus *Lap.* and gibbicollis *Lap.*

81. C. hamatus *Say* is distinct from C. gazella *F.* and is the same as C. ruricola *O. fide* Laporte.

82. C. undulatus *Say.* *Add* undatus *Kb.*=sayi *Lap.*

85. C. fuscus *Kb.* *Add* undulatus ‡ *Lap.*

87. *For* muricatus *read* muricatulus *Kb.*

Dele No. 89, *vide* 190.

96. *For* gazelluta *read* gazellula.

99. Phyton must replace Diozodes, but Say's trivial name has priority of Newman's *limum.*

102. Nothrus scarcely differs from Gracilia.

103. The generic name Plectromerus ⸸ *Dej.* must give way to Curius *Nm.*

105. *For* maculatum, pallidum; *read* maculatus, pallidus.

108. *For* linearis *read* lineare.

109. *For* Gnomo *read* Gnoma.

113. *Dele* Necydalis americanus, which is ♀ of 114 N. mellitus, Mr. Brevoort, of N. Y., having found them *in coitu.* Genus Callisphyrus *Nm.*

115. Genus Heliomanes *Nm.*

115½. Molorchus corni was overlooked in the enumeration.

116. Moneilema *Say*, seems to have a synonym in Collapteryx *Nm.* It represents Dorcadion upon the western continent, and appears to inhabit a similar region with that genus. I am indebted to Dr. Le Conte for a specimen.

118. *For* A. *read* A?

125-6. Dr. Le Conte thinks Amniscus marginellus ♀ Dej. *Hald.* identical with A. aculifera *S.* and in a letter states that "Say was in error when he wrote *tip entire*, as they are truncate in all the genus."

132-3. Dr. Le Conte thinks Amniscus sticticus and A. macula identical.

138. Lamia facetus *Say*, is stated by Dr. Le Conte to be a LEIOPUS.

145. Leiopus symmetricus. *Syn.* L. rufiventris ♀ *Harris.*

151. Having now a specimen of this species, I am able to refer it to EXOCENTRUS instead of POGONOCHERUS, in which it was provisionally placed.

152. Dr. Le Conte thinks this should be considered an EXOCENTRUS, and he has doubts of DESMIPHORA being a good genus.

158. *For* Monohammus maculosus *read* confusor *Kb.* N. Z. p. 168.

160. *For* M. tomentosus *read* marmorator *Kb.*, 169.

161. *Dele* marmorator.

163. The possible reference to Astynomus nodosus ♀ should have been questionable.

164. I have received specimens of Plectrodera scalator from New rleans, through Mr. Guex, and Dr. Morris has an individual taken in Washington, D. C.

179. Compsidea tridentata occurs from Mass. to Alab. and in Missouri.

180. C. lateralis appears in June and July.

188. Saperda pergrata *Say* (now in Cab. Le C.) is a STENOSTOLA.

190. Atimia tristis is Clytus confusus *Say*, as Dr. Harris has recently shown me. It will of course take Say's trivial name.

191. I think it best at present to refer ATAXIA to STENIDEA.

192. Stenostola fuscipes *Say*, placed in this genus by Dejean, is a SAPERDA, and the ♁ of Saperda discoidea *F.* The two have been found *in coitu* by several observers.

195. O. myops. *Add*—a small spot upon the humeri, another between the anterior and medial feet; superior and posterior margin of the mesosternum, and a lateral blotch upon the 2d and 3d abdominal segments, black, Pennsylvania in June, on Acer.

201. Oberea monostigma. The eyes are distinctly divided in 2 by the antennæ, the larger division being inferior. This is considered a generic character, and I accordingly propose the name OBEROPA, from Ωϵη, ωϵαζω, and ωψ, a rather obscure etymology, but which is

chosen from its similarity to Oberea. It is so seldom that the etymology is expressive, that I seldom give it, considering that generic names should be used as proper names, as in the case of Cicindela, Lamia, &c.

204. Amphyonycha marginata *F.* Hab. Georgia. *Syn.* Saperda flammata *Nm.*

205. Distenia undata *F.* Hab. New York, Penna. and Georgia. It has a disagreeable scent when recent.

208–9. The Genus Rhamnusium was inserted doubtfully on the strength of Dr. Harris's comparison of his insect with the European Rhamnusium. Having recently seen his specimen, I find it identical with Toxotus rubidus; it will accordingly be called Toxotus decoloratus *Harris.* It has been found at Niagara.

213. Toxotus cylindricollis *S.* Probably *dives* of Newman.

215. Toxotus æsculi = cinnamoptera *Randall* (Leptura), Bost. J. 2,45. Mass. Car.

225–6. These are identical, but the true Pachyta leonardii, recently shown to me by Dr. Harris, is my No. 259 Leptura malachiticus.

232. Var. solitaria, hab. Alab. Missouri. *For* confluenta *read* confluens.

238. S. zebrata (?). S. aurigera *Nm.* seems to be a synonym of this species, rather than of S. velutina. The *zebrata* noticed by me seems not to be that of Fabricius, whose description requires *black* antennæ, which would associate it with *zebra.*

241. S. velutina. Pa. July. A variety occurs in which the elytra are of a uniform reddish colour, clothed with yellowish sericeous. North-west Illinois. 242. S. fugax is probably the male.

243. S. luridipennis is identical with mutabilis *Nm.*

255. *For* cinnamoptera *read* erythroptera *Kb.* as the erythroptera of Zenker was published in Germar's Species, in 1825, whilst Say's rubrica (No. 256) was published in 1824, and must consequently take precedence.

259. L. malachiticus, of which my *cyaneus*, (Proced. Acad. Nat. Sc. 3,151,) is a variety. It, with L. vagans, comes better under Pachyta.

272. Leptura semivittata seems to be *vittata* No. 261.

277. L. proteus. *Omit* biforis.

281. Anoplodera 4 vittata, var. *pallida*, is Newman's *directa.*

285. Prionus fissicornis *Hald.* Proceed. A. N. S. 3,125.

286. Sphenostethus serripennis *Hald.* id., 126. Alluded to but

not described by Westwood (Arcana ent. 1,40) as Hoplopteryx denticulatus. He gives no locality.

287. Sclerocerus muticus ‡ *Dej.* Cat.

288. Molorchus tenuipes *Hald.* id. 3,126. I propose to separate this as a distinct genus to be named TESSAROPA. The facies and antennæ are as in Molorchus, but the head is more vertical, the eyes divided, the inferior division the largest, oval, and prominent; prothorax simple, cylindric; feet short and slender; femora not clavate. The body and antennæ are pilose, the latter longer than the body. T. *tenuipes* is black, punctate scabrous, with the base of the elytra fulvous, and the hairs of the antennæ nearly erect. It is somewhat smaller than the next species, and like it, the wings are not folded.

289. Tessaropa ventralis. Black, punctate-scabrous, abdomen fulvous, femora sometimes fulvous. 3 lines, or 4 to the apex of the wings.

290. Eburia distincta *Hald.* Proceed. Acad. Nat. Sc. 3,150.

291. Elaphidion simplicicollis *Hald.* (Enaphalodes) ib. 151.

292. Strangalia strigosa *Newman.*

293. Leptura badia *Nm.* 294. L. nobilis *Nm.* 295. L. sinuata *Nm.* 296. L. indirecta *Nm.*

297. L. stictica *Nm.* 298. L. vibex *Nm.* 299. L. allecta *Nm.* 300. L. exigua *Nm.*

301. L. hæmatites *Nm.* 302. L. nana *Nm.* 303. (211?) L. vittigera *Rand.* Bost. J. 2,29. 304. L. semimarginata *Rand.* ib. 2,30. 305. L. plebeia *Rand.* 2,28. 306. L. monticola *Rand.* 2,27.

307. Lamia marmorata *Randall.* Bost. J. 2,26.

308. Lamia sexguttata *Say.* J. Acad. Nat. Sc. 3,269.

309. Saperda trigeminata *Rand.* Bost. J. 2,43.

310. Saperda cretata *Nm.* Ent. Mag. 5,395.

311. Obrium rubrum *Nm.* = rufulum?

312. Callidium antennatum *Nm.* 313. C. æreum *Nm.* Ent. Mag. 5,393. 314. Curius scambus *Nm.*

315. Thia pusilla *Nm.* 316. Spacalopsis stolata *Nm.*

317. S. suffusa *Nm.*

318. Elaphidion irroratum *F.* Omitted as a West Indian species, but it has occurred several times in the United States, and as far north as New York, taken by Mr. Calverly.

319. Elaphidion njumanii *Hald.* E. bidens ‖ *Nm.* The Fabritsian *bidens* must have 2 spines to each articulation of the antennæ, whilst that of Newman has but 1.

320. Elaphidion arctum *Nm.* 321. E. pumilum *Nm.* 322. E. deflendum *Nm.*

323. Encyclops cæruleus *Say* (Leptura), J. Acad. Nat. Sc. 5,280. Encyclops *Nm.* pallipes *Nm.* Ent. Mag. 5,392. This genus seems more nearly allied to Molorchus than to Leptura.

Adjourned Meeting, November 9.

Present, thirty-one members.

Dr. Chapman, President, in the Chair.

The special business of the meeting was transacted

Stated Meeting, December 17.

Present, twenty members.

Dr. Bache, Vice-President, in the Chair.

Letters were received and read:—

From the Ethnological Society of Paris, dated 25th August, 1847, announcing a donation to this Society; and a desire that they should receive in return the publications of this Society: and,—

From Mr. W. D. Lewis, dated Philadelphia, 17th December, 1847, on matters connected with his claim against the Society.

The following donations were announced:—

FOR THE LIBRARY.

Journal Asiatique, ou Recueil de Mémoires, d'Extraits et de Notices relatifs à l'Histoire, à la Philosophie, etc. des Peuples Orientaux. Quatrième Série. Juin, 1847. No. 45. Tome IX. Juillet, Août. Nos. 46 et 47. Tome X. 8vo.—*From the Society.*

Mémoires de la Société Ethnologique. Tome premier, en deux parties, 1841. Tome Second, en deux parties, 1845. 8vo.—*From the same.*

Bulletin de la Société Ethnologique de Paris. Tome premier, Année 1846. Année 1847. Janvier à Mars. 8vo.—*From the Ethnological Society of Paris.*

Summary of the Transactions of the College of Physicians of Philadelphia. From June to November, 1847, inclusive. Vol. II. No. 3. 8vo.—*From the College.*

Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIV. No. 264. Third Series. Vol. XIV. December, 1847. No. 6. 8vo.—*From the Institute.*

Proceedings of the Historical Society of Pennsylvania. Vol. I. February, No. 9. March, No. 10. September, No. 12. 1847. 8vo.—*From the Society.*

Fisher's National Magazine and Industrial Record. Published by Reowood Fisher, New York. Vol. I. June to November, 1845. Vol. II. December, 1845, to May, 1846. Vol. III. June to November, 1846.—*From Thomas Gilpin, Esq.*

Females and their Diseases; a Series of Letters to his Class. By Charles D. Meigs, M.D. Philadelphia, 1848. 8vo.—*From the Author.*

Memoir of Francis Baily, Esq., D.C.L. Oxford and Dublin, President of the Royal Astronomical Society, &c. &c. By Sir John F. W. Herschel, Bart. 8vo. Accompanied with a Portrait, engraved by Thomas Lupton, from the original painting, by Thos. Phillips, R.A., of Mr. Baily.—*From the Rev. R. Sheepshanks.*

A Brief Notice of the Life, Researches, and Discoveries of F. W. Bessel. By Sir J. F. W. Herschel. 8vo.—*From the same.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

Annales de Chimie et de Physique. Par MM. Gay-Lussac, Arago, Chevreul, etc. Troisième Série. Tome XXI. Septembre, Octobre, 1847. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Tome XXV. Nos. 5 à 16. 2 Août, 18 Octobre, 1847. 4to.

On motion of Dr. Patterson, the Committee on the Solar Eclipse, appointed at the meeting of the 6th December, 1844, was discharged.

Judge Kane announced the death of Chancellor James Kent, of New York, a member of this Society, who died on the 12th instant, at the age of 85; when on motion of Mr. G. W. Smith,

Judge Kane was appointed to prepare an obituary notice of Chancellor Kent.

Professor Kendall presented a communication from Mr. Walker, containing new elements for the planet Neptune.

Prof. Kendall communicated the following elliptic elements of the planet Neptune, derived by Mr. S. C. Walker from a discussion of 689 observations, including those made by Lalande in 1795.

Long. of perihelion,	$\varpi = 48^\circ\ 21'\ 2''.93$	Mean Equinox of Jan.
„ ascending node,	$\Omega = 130\ 4\ 35.03$	1st, 1847.
Inclination,	$i = 1\ 46\ 59.54$	
Eccentricity,	$e = 0.00857741$	
Mean daily sidereal motion,	$\mu = 21''.55448$	
Epoch, January 1st, 1847,	$M = 328^\circ\ 31'\ 56''.36$	Mean noon, Greenwich.
Period,	$T = 164.6181$	Tropical years.

The heliocentric co-ordinates for the mean equinox of January 1, 1847, are,—

$$x = [9.9998769].\ r.\ \sin(v + 138^\circ\ 21'\ 52''.13)$$
$$y = [9.9662265].\ r.\ \sin(v + 48\ 55\ 27.32)$$
$$z = [9.5800962].\ r.\ \sin(v + 45\ 2\ 37.90)$$

The four normal places used as the basis of these computations are given below, corrected for parallax, and refraction, but not for planetary aberration. They are referred to the mean equinox above mentioned. The perturbations of Neptune by all the other planets, were computed by Prof. Peirce, and have been applied to the elliptic places.

Mean time, Greenwich.		1795 May 9d 45256	1846 Nov. 7d 0	1847 April 6d.0	1847 Aug. 22d.0
Obs. Geo. R. A.,	A	213° 39′ 34″.18	327° 49′ 50″.24	331° 49′ 45″.65	331° 19′ 13″.71
„ Dec.,	D	−11 34 36.21	−13 34 21.65	−12 9 17.82	−12 24 7.55
True elliptic long.,	v	215 48 12.73	327 13 58.37	328 8 0.93	328 57 44.75
Perturbations,	δv	+ 37.60	+ 32.10	+ 31.29	+ 29.49
True ell. Rad. Vec.,	r	30.28772	29.99441	29.99042	29.98677
Perturbations,	δr	+ 0.01207	+ 0.01608	+ 0.01497	+ 0.01493
Computed Geo. R.A.	A'	213° 39′ 32″.32	327° 49′ 53″.16	331° 49′ 44″.82	331° 19′ 13″.95
„ Dec.	D'	−11 34 34.89	−13 34 20.42	−12 9 20.47	−12 24 7.56
Corr. Eph.,	$A - A'$	+ 1.86	− 2.92	+ 0.83	− 0.24
„	$D - D'$	− 1.32	− 1.23	+ 2.65	+ 0.01

Professor Tucker read a paper on "the Association of Ideas," in which, in conformity with his lectures formerly delivered

in the University of Virginia, he maintained that all the phenomena of mental association were to be explained by that law, both of body and mind, by which each has a tendency to repeat its former acts; and that it is a necessary result of this law that proximity of time or place, resemblance, and contrast, are the principles of connexion between conjoined ideas.

Professor Tucker further remarked, that there appeared to be some coincidence between his views of association and those of Sir William Hamilton in his recent edition of Reid's works, but the latter part of the note on this subject being omitted, by the carelessness of the binder, in the copy he had seen, the only one he believed in the city, he could not yet say how far Professor Hamilton's theory of association agreed with his own, and how far they differed.

The Committee of Finance, by Mr. C. C. Biddle, made their annual report.

ERRATUM.

In the Proceedings, Vol. IV., No. 35, p. 269, the final character of the Wyandot numeral for *five*, should be inverted.

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